S. HRG. 100-63

STREAM BANK EROSION ON THE MISSOURI RIVER AND OTHER WATER RESOURCES PROBLEMS IN NORTH DAKOTA

HEARING

BEFORE THE

SUBCOMMITTEE ON WATER RESOURCES, TRANSPORTATION, AND INFRASTRUCTURE

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

FEBRUARY 11, 1987—BISMARCK, ND

Printed for the use of the Committee on Environment and Public Works

U.S. GOVERNMENT PRINTING OFFICE

73-540 WASHINGTON : 1987

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

5321-14

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STREAM BANK EROSION ON THE MISSOURI RIVER AND OTHER WATER RESOURCES PROBLEMS IN NORTH DAKOTA

WEDNESDAY, FEBRUARY 11, 1987

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON WATER RESOURCES,
TRANSPORTATION, AND INFRASTRUCTURE,
Bismarck, ND.

The subcommittee met, pursuant to notice, at 9 a.m. in the Town House Motor Inn, Bismarck, ND, Hon. Quentin N. Burdick, presiding.

OPENING STATMENT OF ARLENE HAUNSON, RESIDENT AIDE, BISMARCK OFFICE OF SENATOR BURDICK

Ms. HAUNSON. Good morning. We're very pleased to welcome you to the water resource oversight hearings that Senator Burdick will be conducting today. We're also very pleased that so many groups and individuals would wish to testify at the hearing and be part of the official proceedings.

I would like to introduce the professional staff that has come with the Senator from Washington, from his Environment and Public Works Committee in the Senate. We have Tom Skirbunt and Ann Garrabrant. They are the committee experts on water issues for the Senator. We encourage you to visit with them today, as they do plan to move around the hearing area later on.

We also have with us John Austin from the Senator's Washington office. John is the person that knows everything about everything, so we all go to him when we want to know any information. Also from Washington we have Lori Boeder, who is the Senator's press secretary. Many of you may remember her, she worked for KFYR a few years ago here in Bismarck.

Written testimony that is received will also be part of the official proceedings of this hearing. Those of you who are testifying today and have registered with our office who have not submitted their testimony to me, I would like to have it brought up to the table, please.

It is now my pleasure to introduce to you a man of great stature to the people in North Dakota, the chairman of the Senate Environment and Public Works Committee and my esteemed employer, the Honorable Senator Quentin N. Burdick.

[Applause.]

Senator BURDICK. You stated that just right.

Governor SINNER. You notice what she put first, the employer.

OPENING STATEMENT OF HON. QUENTIN N. BURDICK, U.S. SENATOR FROM THE STATE OF NORTH DAKOTA

Senator BURDICK. Good morning, ladies and gentlemen. I'm glad to be here in Bismarck this morning conducting my first hearing in North Dakota as chairman of the U.S. Senate Committee on Environment and Public Works.

My opening remarks will be brief, because the purpose of this hearing is to hear from you. I want to listen to your water resources problems. I want these to include stream bank erosion on the Missouri River possibly caused by the upstream reservoir.

I also believe that North Dakota's communities share a growing national concern for the future rehabilitation and expansion of our water supply system.

Finally, I look forward to your assessment of the performance of the Corps of Engineers' projects which are in place, as well as the need for projects beginning the planning phase. Water resource programs are essential to the State of North Dakota. We really need them for the management of existing water for drinking, agriculture, power, and flood control. We must protect the resources we have and plan for the future needs of our people.

I'm delighted that I'm now in a position to help provide these needs. As chairman of the Committee on Environment and Public Works, I intend to do everything in my power to see that North Dakota's interests in these matters are fully and completely heard in Washington. This hearing is the first and most important step toward that goal.

I might say that time will be a factor if we are to have everyone. We're going to go straight through, and if everyone will keep to the announced time limit, everyone will be heard.

Our first witness will be a good friend of mine. He's a pretty good farmer from Cass County, and is the Governor of North Dakota. Governor, you're first.

STATEMENT OF HON. GEORGE A. SINNER, GOVERNOR, STATE OF NORTH DAKOTA

Governor SINNER. Thank you, Senator. We're delighted to have you here and appreciate your leadership in this real important area.

The story of the Flood Control Act of 1944 and the resultant Pick-Sloan program has been a 40-year saga that has filled much of your time, the time of all North Dakota leaders throughout those 40 years. In many ways it has been a saga of disappointment and broken promises for North Dakota.

The initial agreement for a significant irrigation program in exchange for a downstream flood control program was broken almost the minute flood control was achieved.

Even upstream states' right to use water has been questioned, despite the extensive sacrifices made by those states in land and productivity and despite the fact that claim to natural flows should be given.

Most recently, long, arduous negotiations and sacrifices have brought birth to the beginning of a new program in the Congress. This new program only partially compensated North Dakota for its

sacrifices to downstream states for the Pick-Sloan program, but at least everyone finally bought into the redesigned Garrison project, including environmental, North Dakota and other interests. Now, with the ink hardly dry, the administration has negated even this modest program by advocating virtually no new funds.

So my first request to you is that I urge you, I plead with you, and the Congress to honor the commitments so painfully worked out and restore funding for the project.

This brief background emphasizes that North Dakota needs and deserves the opportunity to use Missouri water for the benefit of its citizens only sets the stage for other comments, as well. In order to do comments—or make those comments, we must have facts recognized by Congress and we must have cooperation from Federal agencies and the Congress alike.

Since the time Garrison Dam was constructed to provide flood control to the lower basin and to generate hydroelectric power, most of which goes to Minnesota, we have had a very serious erosion problem in the 70-mile unobstructed reach of the river between Garrison Dam and the Oahe Reservoir, which lies south of Bismarck. The operation of the dam provides for systemwide benefits, utilizes this 70-mile reach as an outlet works to deliver water downstream. The wide fluctuations to accommodate power generation demands, the releases for navigation uses downstream and the operation of the reservoir to control downstream flooding all impact adversely on the steam banks. There are approximately 100 acres of land, good land, including trees, lost each year—a hundred acres lost each year to the erosive forces of the river.

To date the Corps of Engineers, the operator of the river system, has not acknowledged that it has a responsibility in this area as a part of its maintenance responsibilities, although it does handle the maintenance of the channel below Sioux City. Obviously, this situation creates gross inequities which impose heavy financial burdens on State and local governments in this area. Undoubtedly, you will hear much more about this situation as your hearing progresses.

I should comment parenthetically that Colonel West—who, I think, is here—Colonel, nice to have you here. I don't know who else is here. I know General Dominy is here and Colonel Briggs. Who else is here?

Colonel WEST. Our planning staff chief, Mr. Velehradsky from our division. Our project manager, Mr. Shrine.

Governor SINNER. We appreciate your presence. These people, I know, are sincerely concerned about this issue, and we have talked already about the absolute necessity of finding a solution even if the State has to go in and do some of the work. It's a situation that's growing worse and that we cannot let continue. The long-term interests of the State and the people demand that somebody take an active role in solving this problem.

Another area which you will be hearing about today is the Mouse (the Souris) River Valley and its need for flood control.

You, Senator, had a great deal to do with the package that involves construction of reservoirs in Saskatchewan to supply water to electrical generating plants while also providing much needed flood control downstream for Minot and the other areas of the valley. The early discussion of this plan by Premier Devine and me

received real significance through your support. I am still fully supportive of your efforts to bring this project on line and will do whatever is necessary to help. I have made funding commitments on behalf of the project which have been submitted to the legislative session presently in progress, I have committed agency personnel and time to working with valley citizens and officials in Canada in efforts to finalize the formal agreements. It is a good project, a needed project, and it should be built. We all have very long memories of flooding problems in the Souris River Valley, and this solution, probably, without question, is the best and most workable solution that we have come across in all these years.

You have also, Senator, worked with citizens in the eastern part of the State to help in solving the flood problems of the Sheyenne, Maple and Red Rivers. My executive budget also contains funds to assist local units of government in these efforts.

Your office was particularly helpful in assisting us in the establishment of a Technical Resource Center to better utilize technology available to the Corps of Engineers for the benefit of North Dakota and Minnesota. The center has been operating with funds made available to the Corps under its section 22 program, which funds were used in other areas prior to the development of the Technical Resource Center. We understand that the $200,000 which was available for the section 22 program has now been increased to $300,000. We would be very grateful if some of these additional funds could be used in our program, because we have much to do in developing solutions to problems common to Minnesota and North Dakota.

One final area of Corps of Engineers' involvement of major interest to this State is the proposal by the Corps to charge North Dakota for waters which we might use from the Missouri mainstem reservoirs. The rationale for such a charge has no justification where it is applied to domestic water supplies above Sioux City, Iowa, and not applied downstream of that point. It also is not justified when the water we use results from natural flows that are only incidentally stored. You will hear more about this from subsequent speakers.

Senator, I'm certain that I speak for all present, for all people of North Dakota, when I express appreciation for your efforts in scheduling this hearing to listen to the concerns of the citizens. Your interest in water development is longstanding and has been appreciated by those of us involved in water matters for many years. We look forward to working with you in your new and prestigious position as chairman of the Senate Environment and Public Works Committee.

Let me also express my thanks to the staff people who are here. We can do virtually nothing in this area without a coordinating effort between congressinal offices and the State, and we really do appreciate your extensive knowledge and interest. Thank you very much.

Senator BURDICK. Thank you, Governor. I know you have a very busy schedule, and I know you have other things to do today. We would like you to stay as long as you wish, but if you have to leave, we'll understand.

Governor SINNER. I think that I will stay for the testimony of Vern and then I will leave.

Senator BURDICK. Then our next witness will be Vern Fahy, the chief engineer, State Water Commission of North Dakota, Vern.

STATEMENT OF VERN FAHY, CHIEF ENGINEER, NORTH DAKOTA STATE WATER COMMISSION

Mr. FAHY. Thank you, Mr. Chairman and staff of the Senate Environment and Public Works Committee. We would like to join Governor Sinner in extending you a sincere welcome to the City of Bismarck, the great State of North Dakota, and to this important, though largely undeveloped, reach of the Missouri River. We intend to discuss with you today a wide range of issues involving the Missouri River and several other areas of the state. If necessary, we will orally summarize some portions of our written statement to comply with the committee's time schedule.

In connection with that, several days ago we presented you a comprehensive statement and then just recently we presented you a shortened version of that and I'm now going to discuss an even more shortened version, and I will share my time with David Sprynczynatyk, who is my assistant and who will cover a portion of the testimony.

If you could see the great Missouri, only a few blocks from here, you would see a tree-lined channel alive with shifting, surging ice floes that are moved by a quantity of water which exceeds 16 million acre-feet annually.

If you could see the impoundment behind Garrison Dam, about 70 river miles north of here, you would see a marvel of construction that contains about 23 million acre-feet of water.

Within the southern city limits of Bismarck are the upper reaches of the water impounded by Oahe Dam constructed near Pierre, South Dakota. It is only slightly smaller than the reservoir impounded by Garrison.

This, then, is a resource which is of tremendous benefit to downstream states and has the potential for immense benefits to our state and region. Much of our discussion will involve this area of the upper Missouri River system.

Statements are frequently made that the Corps of Engineers maintains an adversarial relationship with the upper basin States, but a cozy and comfortable partnership with the States below Sioux City. It is easy to understand why this impression is so strong in the upper basin by a brief review of the Corps of Engineers' positions on channel maintenance and water marketing proposals.

The major interest and the major mission of the Corps of Engineers in the Missouri Basin is navigation now that the flood control reservoirs are in place in the upper basin. Congress has decided that the Corps of Engineers will perform channel maintenance at the expense of the Federal Government in the lower basin where navigation occurs, but that State and local governments must pay for channel maintenance in the upper reaches where navigation flows are stored and released.

It is ironic that this area which has sacrificed so much to provide downstream benefits for navigation, flood control and electric generation, should also be required to pay for maintenance and upkeep costs associated with the delivery system that supplies those massive downstream benefits!

Other speakers will address maintenance costs and practices in more detail.

The subject which I would like to address in some detail is the proposal by the Corps of Engineers to begin charging upsteam State and local government for domestic water removed from a Pick-Sloan maintstem reservoir. As proposed, the charge will be assessed whether or not the water used is from natural flows and whether or not the domestic supply project benefits from the presence of a mainstem dam.

During the mid 1970s, when a multi-agency task force undertook a study to determine what Federal agency should contract for sale of industrial water, the Corps of Engineers' legal staff determined then that water marketing was not within the purview of the Corps of Engineers, so this marketing function was assigned to the Bureau of Reclamation. The Bureau then entered into several industrial water contracts in this area.

In recent times, the Corps of Engineers has reserved its position on water marketing and is now proposing that there is no water in the upper basin reservoirs available for use by the State and local government without a water sales contract with the Corps.

The new position of the Corps of Engineers concerning water marketing based on its interpretation of the language in congressional acts makes reference to use for navigation of waters impounded behind Fort Peck Dam. Please keep in mind the 1944 Flood Control Act was passed several years after Fort Peck was constructed and this 1944 act completely revised the law of the river as it existed prior to 1944.

The Corps of Engineers' claim to marketing control of all water, based on its interpretation of pre-1944 congressional language dealt with navigation, completely ignores the O'Mahoney-Milliken Amendment to the Flood Control Act of 1944. The amendment specifically assures the upsteam States of their rights to water regardless of needs for navigation.

The amendment states, in part:

> The use for navigation of waters arising in states lying wholly or partly west of the 98th meridian shall be only such as does not conflict with any beneficial consumptive use, present or future, in states lying wholly or partly west of the 98th meridian of such waters for domestic, stock water, irrigation, mining or industrial purposes.

It seems to us who manage water resources in the upper basin States that Congress has spoken on the subject and that it is time for the Corps of Engineers to assist, rather than impede, the development which Congress considered in the language of the O'Mahoney-Milliken Amendment to the Flood Control Act of 1944.

Our dissatisfaction with certain positions of the Omaha District of the Corps of Engineers should not be construed as a criticism of the personnel involved. These professionals are attempting to do their job as they believe it should be done, and their actions are always at the highest level of professionalism. We sincerely hope

that the policy changes will be made by Congress and by the Chief of Engineers in Washington, D.C., that will result in equitable management of the great Missouri River for the benefit of all users, as was foreseen in the Flood Control Act of 1944.

SOURIS RIVER FLOOD CONTROL

The need for flood control on the Souris River has been apparent for many years. Major floods have caused substantial damage to Minot and Velva. Many farms experience flooding problems nearly every year.

The Souris River flood control project, as currently designed, envisions the construction of impoundments in Canada to serve needs in Canada and flood control for the downstream regions.

Under new cost-sharing guidelines, the non-federal share of the project must be at least 25 percent. Certain features of the project were authorized in the 1970s and, as a result, traditional cost-sharing is permitted.

The Souris River Joint Board is the local sponsor for the project and will coordinate the non-federal cost requirements. The non-Federal costs will be paid by a one percent sales tax paid by the City of Minot, state funds, county mill levy taxes and miscellaneous other taxes.

Many of the features of the project have been or are nearing completion. The levees through Minot were completed in 1979 and the Velva levees are nearly completed. The 12.8 million dollar non-federal cost share represents 4.5 million dollars of payments to the Corps of Engineers for project features in North Dakota, 4.25 million dollars for the two Canadian dams, and 4.1 million dollars for quaranteeing the 1986 United States-Canada exchange rate. The City of Minot was required to guarantee the United States Government exchange rate from January 1st, 1986, to July 1st, 1987, for the 41.1 million dollar total payment to Saskatchewan, a potential cost of 4.1 million dollars.

There is a need for a technical amendment to be adopted in language of Congress which states that 41.1 million is a maximum amount, and if that language remains, there probably is not flexibility necessary to meet the funding commitments. And you will hear more about this from speakers who are dealing with that subject.

SHEYENNE RIVER FLOOD CONTROL

A few comments about the Sheyenne River flood control project. This area has experienced flooding for many years, and there have been many, many studies made. The present project proposes levee construction and diversion at West Fargo; flood diversion channel from Horace to West Fargo; and a raise of Baldhill Dam north of Valley City.

The levee construction and diversion around West Fargo will provide this area with 100-year flood protection, and these projects are actively endorsed by local citizens. The raise of Baldhill Dam is opposed by several groups and alternatives are still being studied. However, the Baldhill Dam situation will not affect the balance of the project. The Corps of Engineers has conducted several engi-

neering studies on the project and has completed the environmental impact statement.

CORPS TECHNICAL RESOURCE SERVICE

The Technical Resources Service of the Corps of Engineers has proven to be an asset to water management in the Red River Valley. Services funded through the Corps of Engineers' section 22 program has allowed the Corps to provide technical assistance and to facilitate communication coordination between the two states.

For 1988 and beyond, we hope that the limit for the state for the section 22 program can be made available. The limit has been raised to $300,000. Because of the success of this Technical Resource Service, which you, Senator, were largely responsible for getting for us, we would like to see it funded at its limit.

DEVILS LAKE FLOOD CONTROL

The rising level of Devils Lake is a flood threat to the City of Devils Lake and to other developments around the lake. The Corps of Engineers has been studying an outlet for the lake for the past two years. Such an outlet would likely go to the Sheyenne River, and would allow for the management of Devils Lake below flood damaging levels.

To date, the study has shown that the benefits of an outlet exceed project costs, but because of the complex interstate and international concerns, the potential impacts must be evaluated thoroughly. Also because of the existing authority for the Bureau of Reclamation to develop both an inlet and an outlet, further coordination is necessary. For these reasons, further funds should be made to continue the study of alternatives. Specifically, funds should be provided to fully evaluate the water quality effects of any outlet. This work could be done jointly by the Corps and by the State of North Dakota. Such work should proceed immediately so the project can be implemented when Devils Lake rises to a greater flood damage level.

DAM SAFETY

During 1986, the new Dam Safety Act was approved by Congress and signed into law by the President. We have learned that the Corps of Engineers has not beeen supportive of this act and has given it a low priority for implementation.

Dam safety has been a concern in North Dakota for many years. We feel that implementation of the new act would help to enhance dam safety in North Dakota, as well as throughout the country.

GENERAL CORPS OF ENGINEER PROJECTS

Many smaller projects are being studied or implemented in North Dakota. These projects are primarily for flood control and need to be completed as soon as possible. These projects include the English Coulee closure structure in Grand Forks, the Enderlin flood protection project, the Argusville flood control project, Neche flood control and the Heart River flood control project near Mandan.

WATER SUPPLY LOAN LEGISLATION

We've been asked to comment on the potential for water supply loan legislation. Any proposed federal water supply loan legislation should be worded to recognize conditions unique to states having large land areas and low-population densities.

These States have need for water systems having the same basic components as do systems that serve large metropolitan areas except for the size of the facilities. The ability to repay loan costs is much greater in a high-density area than would be the case in a rural state such as ours. Imagine the number of miles of pipe and the number of customers in a system to serve a city of 680,000 people as compared to the miles of pipe and number of customers involved in a system to serve that same number of people spread across the State of North Dakota.

It would seem to me that population should not be the only criteria used to set the maximum loan value. Our state would be eligible for only about $300,000 per year under the loan program that failed in the 99th Congress and in which population was used as the principal criteria.

If a funding program is authorized, it should require that there be an acceptable metering or measuring device to account for water put into and removed from the system. This will greatly reduce the immense volume of expensive, treated water that is unaccounted for in many large municipal systems.

When a water service is metered, there is a definite incentive for conserving water because the user will associate consumption of water with its cost.

I think water supply loan legislation would be of great help to areas in economic distress, but the criteria must be such that it does not discriminate against low-population density population.

Senator, that completes my remarks, but the remainder of our statement will be given by David Sprynczynatyk, who is my assistant and well versed in all of these matters.

Senator BURDICK. I must say that all statements will be taken for the record in full, so if you want to abbreviate it, it's perfectly acceptable.

By the way, is there two ladies in the back of the room that would like chairs? There are two chairs up here, reserved only for ladies. All right, Dave, you're next.

STATEMENT OF DAVE SPRYNCZNATYK

Mr. SPRYNCZYNATYK. Thank you, Senator. I will address the erosion problems along the Missouri River and, also, the Yellowstone River in North Dakota.

The erosion problems resulting from Garrison Dam Construction and operation are not new. The erosion problem caused by the release of clear, silt-free water was immediately apparent to the landowners along the Missouri.

In February 1960, the Corps of Engineers held a hearing in Bismarck to address this problem. Then, as now, there was an avid interest among the landowners adversely affected by erosion along the Missouri. Over thirty farmers presented statements at the hearing concerned about the newly developed erosion problem. A

copy of the hearing record from that 1960 hearing has been included with our written remarks.

The water released from Garrison Dam is virtually silt-free. This means that the water has a silt-carrying capacity greater than 2 percent of the weight of the water, itself. The water released from the dam is attempting to obtain this capacity, and in doing so removes silt form the riverbed and riverbanks, eventually carrying it into the Oahe Reservoir.

In 1964, in its statement on the need for the Missouri River bank protection works, the Senate Committee on Public Works said:

> Prior to construction of the Garrison Dam the waters of the Missouri River were heavily laden with silt and sediment to the point that, while bank erosion did occur, it was very minimal, and usually for each loss of land there was a corresponding accretion or gain in the area. With the construction of Garrison Dam, the sediment is deposited in the reservoir, and the releases from the reservoir are virtually silt free and they degrade the channel and erode the banks downstream from the dam at a considerable rate. It is estimated that about 640 acres of good river bottom land in North Dakota is lost annually along the Missouri River below Garrison Dam through bank erosion.

Prior to the construction of the dams, there was a balance over the years between erosion of the high banks and the building of new valley lands by sediment deposited during floods. The balance between the erosion and deposition processes resulted in no net loss of valuable valley lands.

The Corps of Engineers' report to Congress in 1981 expressed the problem as follows:

> Bank erosion in this reach results in a permanent net loss of high valley lands. High valley lands are being converted to river channel and sand bar areas, while the width between high banks continue to increase. This process, unless halted, would eventually transform the present river into a wide area of sand bars and channels, occupying an increasing proportion of the valley between bluffs.

This stream bank erosion results in the permanent, irreplaceable loss of prime agricultural lands, degrades water quality and threatens residences and public facilities. The continuing threat of erosion is a particular problem for those activities where proximity to the riverbank is either desirable or necessary. These activities include irrigation intakes, summer homes, powerplant intakes and recreation facilities. It has been necessary for power companies to provide erosion protection to protect teansmission towers.

The preservation of trees is of special concern since most of the remaining uncleared woodlands in the Missouri River bottoms are concentrated near the riverbanks. Because of erosion, these trees are continuously being destroyed.

The Corps claims that changes to the Missouri River channel resulting from Pick-Sloan program features cannot be corrected as part of the authorized program and that additional congressional authorization is required to address these channel problems. It is suggested that individual projects must be authorized and Federal funds appropriated. The Corps has even said that non-Federal cost-sharing will be required.

At the request and urging of Senator Milton Young, the Congress authorized the Flood Control Act of 1963, which provided for the construction of stream bank protection works along the Missouri River in North Dakota.

Pursuant to such authority, the Chief of Engineers, with the concurrence of the Secretary of the Army, approved the construction of bank protection and stabilization works. Local interests were revised accordingly. Initially, it was thought that they would only be required to provide the necessary right-of-way and to hold the United States free from damages due to the construction, in order to have the facilities built. Later information, however, was to the effect that non-Federal interests would also be required to maintain the improvements at their own expense, at an estimated annual cost of one and a half percent of the construction cost.

The last Corps of Engineers' bank stabilization projects that were built under the section 32 Demonstration Act of 1975 were built in an effort to determine how economically protection could be achieved. Many of these projects have failed or will soon fail and considerable maintenance will be necessary or the projects will be lost. This program would be better described as an experimentation program rather than a demonstration program.

All these projects, also though initially federally financed, were build under agreements with the state or local government providing all easements, maintanence and assurances that would hold the United States free from damages. The local entities knew that was wrong, especially when compared to the downstream projects where all maintenance is actually federally funded. But it was necessary to sign the required A.B.C. agreements because the need was so critical and the belief was that this obvious injustice would be corrected.

With the construction of the Pick-Sloan dams, the downstream benefits to navigation and flood control were immediate. The Missouri River navigation project provided complete bank protection with full federal maintenance. The flood control allowed for development of the flood plain for agriculture, industry and for municipal pumps from Sioux City, Iowa, St. Louis, Missouri. The productivity of these bottom lands and the tax receipts were greatly enhanced. These benefits continue to accrue to the river valley downstream from Sioux City.

Regarding that portion of the Missouri River below Sious City, the 1953 report of the Missouri Basin Survey Commission states,

> Obviously the Corps now considers erosion control and related benefits from the project as more important justification than navigation aspects. Of the total estimated annual benefits attributable to channel stabilization, about 25 percent is credited to navigation and about 75 percent to bank erosion control and land enhancement.

The benefit-cost ratio obtained from the Commission's report further indicates that the annual benefits from channel stabilization are the major beneficiary rather than navigation. Thus, it would appear that if channel stabilization were to be performed in the Oahe-to-Garrison reach, it could stand on its own merits.

There presently are 26 sites in North Dakota where Corps of Engineers' erosion control structures are in need of repair. The estimated cost to repair these structures is $263,475. The annual maintenance cost for the existing Corps structures is estimated at $100,000 a year. This is well beyond the fiscal capability of the State and of local governments.

The Missouri River Stream Bank Erosion Study completed by the Corps of Engineers in July 1985 identifies 41 erosion problem

areas on the Missouri River between Lake Oahe and Garrison Dam that need protection. The Corps estimated the cost to provide this protection to be $26,798,500. Additional problem areas, including 10 to 20 homes, Sibley Island Park, the Fort Lincoln State Park, and the Mandan Cemetery, have been identified by the State Water Commission as threatened by the stream bank erosion.

Another result of the Pick-Sloan operation is the lowering of the water surface elevations in the open river reaches of the Missouri River. Because of channel scouring, water surface elevations have been lowered upstream of Bismarck since the construction of Garrison Dam. Lowering of the water surface has adversely impacted the fish, wildlife and recreation resources within the flood plain.

Drastic changes have been made in the characteristic of the river flows as released through the Garrison Dam operated by the Corps of Engineers.

The water is discharged at a very high velocity which facilitates degradation.

Water is released in accordance with the demand for hydropower which causes broad daily fluctuation, which also increases bank erosion.

The water no longer has the opportunity to depost its sediment load and rebuild previously eroded areas, but carries it into Lake Oahe, thereby reducing the functionary capacity of that reservoir.

The discharges vary considerably to meet power production requirements. An average day will include releases of zero to 10,000 cubic feet per second for a short period during the early morning hours and a maximum of 35,000 to 38,000 cubic feet per second during the peak power production period from forenoon to late evening. The sharp fluctuation in the releases, particularly under an ice cover during the winter months, causes an increase in velocities and erosion. Likewise, during the ice-free period, fluctuations cause the banks to be saturated and dried many times during a month, causing extensive erosion.

Another result of the Pick-Sloan operation has also become apparent in recent years. This is the creation and continual enlargement of a delta in the headwaters of the Oahe Reservoir. This is caused by silt deposition where the moving, silt-laden waters of the river meet the stale waters of the reservoir. This delta is gradually raising the water table under the adjacent land and also triggers ice jams and causes flooding both during the freezeup in the fall and the breakup in the spring. Decreasing the erosion rates between the Oahe Reservoir and Garrison Dam would slow the delta formation. Corrective alternatives may include the purchase of highly developed land, structural methods or the lowering of the operating level of the Oahe Reservoir, all of which are very expensive.

Without the periodic flooding and deposition of fertile silt, present-day agriculture in the Missouri Valley requires irrigation for sustained yields. Irrigation development, however, has been seriously restricted because of the lack of good pumping sites. Either the riverback adjacent to a farmer's land is subject to active bank erosion or the river channel may be located across a half a mile of low sand bars. Either condition discourages or prevents irrigation. Only a few farmers are fortunate enough to have good pump sites

located on naturally hard banks or where a stream bank protection revetment project has been installed. If Missouri River water was readily available and if the land was protected from erosion loss, almost all bottom lands would be irrigated since it has been demonstrated that the soils and water are compatible and it has also been demonstrated that irrigation enhances and stabilizes farm income.

The Midwest Electric Consumers Association, which is an organization of all the rural electric cooperatives and municipal utilities that receive electric power from the Pick-Sloan dams, have consistently approved resolutions requesting the Corps of Engineers to complete construction of the Pick-Sloan project by rectifying erosion problems at project expense. Basin Electric Power Cooperative, Bismarck, and the North Dakota Association of Rural Electric Cooperatives have also consistently adopted similar resolutions. They understand this will cause a small increase in their power costs, but they realize that it is not proper that they receive power at the expense of the land along the river. North Dakota's as well as other state legislatures have also consistently passed resolutions requesting the Corps to complete the Pick-Sloan project by correcting the stream bank erosion problems. Several resolutions have also been adopted by the North Dakota State Water Commission asking for this, the most recent in June of 1986. A copy of this resolution is included with this statement.

The upper Missouri River mainstem reservoir is operated as a unit. The channel of the Missouri River from the Garrison Dam to Lake Oahe is no longer just a river; it is merely a conduit for federal use to operate its reservoirs in the manner which they desire.

It is North Dakota's position that correction of the Missouri River channel problems created or exacerbated by features of the federal Pick-Sloan Missouri Basin program should be the responsibility of that program. It is understood that not all of the effects of the massive Pick-Sloan program could have been predicted, nor planned for, but that does not relieve the federal government of its responsibilities to correct and mitigate damages caused by features of the program. For this reason, it is imperative that stream bank protection along the Missouri River be included as a component of the Pick-Sloan plan.

Finally, I'll briefly address the erosion problems along the Yellowstone River in North Dakota.

The U.S. Congress instructed the Corps of Engineers to implement multiple erosion control projects on the lower Yellowstone River under the Section 32 Demonstration Act. The projects provided much needed erosion protection to the Yellowstone River. However, certain local erosion protection projects resulted in the subsequent migration of an erosion problem to unprotected areas. This is the case in the Cheney Creek project area in western McKenzie County.

Since the project was completed in 1980, additional erosion problems have developed both upstream and downstream from the project.

The Cheney Creek area was damaged and was in need of vital repairs within five years after its construction. The Corps of Engineers' project design memoranda for the project states,

The responsibility for operation and maintenance of the project will remain under the Corps of Engineers for a period of up to five years after completion.

However, after repeated requests by the State Water Commission to the Corps of Engineers to provide the necessary repairs, the Corps has declined to accept the responsibility.

The current problem is also endangering the historic Morrell farmstead in McKenzie County. The Morrell farmstead is eligible for listing on the National Register of Historic Places. For these reasons, stream bank protection must also be provided along the Yellowstone River immediately.

Thank you, Senator.

Senator BURDICK. Thank you very much. Governor, thank you for coming, and I thank the water commissioners for their contribution this morning.

Anything else you want to say?

Governor SINNER. Someone will be here all day. I don't know just who, but one of these people or some of their staff will be here all day, and we really appreciate your coming.

Senator BURDICK. Thank you. Our next group of witnesses will be the BOMMM Board, headed by A.C. Mork, the chairman, from Mandan, North Dakota.

I might say that Andy Mork is largely responsible for this meeting. He has been importuning me for several months now to have this hearing. Andy, you're largely responsible for our get-together today. Will you and yor members take the witness chair and proceed as you wish.

STATEMENT OF ANDREW MORK, CHAIRMAN, BOARD OF DIRECTORS, BURLEIGH, OLIVER, McLEAN, MERCER, MORTON COUNTY RESOURCE DISTRICTS

Mr. MORK. Thank you very much, Senator and members of your staff.

Like you say, we have been working for and looking forward to this meeting for quite sometime, and we sincerely appreciate your coming and your staff coming to North Dakota to hear us out.

You will notice that we provide you with some very good North Dakota winter weather, and I hope you'll appreciate that. A year ago what did they say, it was 26 below this morning, so we're in luck.

Senator BURDICK. Wait till the end of the week.

Mr. MORK. Wait till April, when I'm calving. That's when you have trouble, I guess.

Incidentally, that BOMMM name stands for the letters of Burleigh, Oliver, Morton, Mercer, and McLean Counties. And these are the counties along the Missouri River from Garrison down to Oahe that are affected by this reach of the Missouri River.

North Dakota law provides for water boards in every county, and it also provides for joint boards of counties that have similar problems, and so we are a joint water board organized under the laws of North Dakota.

As for myself, my parents settled me on a farm north of Mandan, on the Missouri Valley, in 1931, and, of course, the Garrison Dam was closed in 1952, so I had all of those years of learning what the

river was like in its natural state; and, of course, we have lived with it since that time in its unnatural state, which is the operation of the Garrison Dam. So my situation is not unique at all. It's very similar to many, many other farmers in this 70-plus-mile reach of the river. Many of them are here today, and unfortunately, many of them are out in the hall yet, too. But, anyway, we've seen this thing developing. We thought we'd have a good river after the dam was put in; it would cure a lot of our troubles. What we found ourselves like the person that had appendicitis, when he got that taken care of, he thought he was home free only to discover he had cancer. The cancer, of course, is the continual loss of this land. And even from the Corps of Engineers' reports, it's going to continue right on unless it's halted.

Several people will be giving some presentation for us today, and I'll give some concluding remarks, if the time permits at the end of our time slot. But at this time I would like to introduce Mike Gunsch. He's an engineer with the American Engineers in Bismarck. He formerly worked many years as an engineer for the State Water Commission, and during those years he worked on this problem, so he knows this problem very, very well from experience, and as an engineer, he gives a technical slant, too. So, Mike, would you take over at this time for your presentation.

STATEMENT OF MICHAEL H. GUNSCH, ENGINEERING CONSULTANT, BOMMM JOINT BOARD

Mr. GUNSCH. I guess what I'll start with here, I will just let you know what I'm going to be having here today. I will have a short videotape which we'll have turned on that you can watch. It's a videotape that was recently taken along the river showing some of the problems areas. I have got a number of slides that I want to show here later on in my presentation that will show some of the existing conditions and the existing projects on the Missouri River. Then I have got several charts on erosion losses and one of the benefit-cost ratios for the Missouri River Basin. Then I want to go through our proposed solution for the problems along the Missouri River.

I'm going to reread something that was stated here earlier, because I think it's really important, some statements made by Dave Sprynczynatyk. The changes along the Missouri River were quite apparent soon after the dams were closed. The Corps of Engineers has recognized these changes, as did people living along the river, and the Corps, in their own reports, has documented these changes. I'll summarize what they say in several statements here.

In the natural river prior to construction of the reservoirs, there was a balance over the years between the destruction of valley lands by erosion of the high banks and the building of valley lands by sediment deposited during the floods. This process resulted in a continual migration of the river channel within the Missouri River Valley. Due to the balance between the erosion and deposition processes, there was no long-term net loss of valley lands. Since the dam closures, the operation of the reservoir system has eliminated both the floods and the sediment that were essential for the building process. On the other hand, the erosion of high banks contin-

ues. Consequently, bank erosion results in a permanent loss of valley high lands—or high valley lands which are never replaced elsewhere in the valley as in the era before the reservoir. High valley lands are being converted to river channel and sand bar areas while the width between the high banks continues to grow. This progress, unless halted, would eventually transform the present river into a wide area of sand bars and channels occupying an increasing portion of the valley and width between the bluffs.

I think this is important because the Corps of Engineers have basically put those two paragraphs together in their own words.

Now, we'll go to some slides here that show you some of the actual conditions that are existing along the river and some of the projects that have been installed.

The building processes of the past are now nonexistent. Land now lost to bank erosion is a net or permanent loss and will never be replaced.

This picture of existing bank erosion will give you an idea of the lands that are being lost. The permanent loss of land between Garrison and the headwaters of the Oahe Reservoir are significant and are the result of the Pick-Sloan Missouri Basin program, as we've previously stated. Fluctuations from power generations and reservoir releases are having an effect on bank erosion, particularly during the winter fluctuations.

Winter fluctuations are the most damaging, these damages being less visible because of the ice cover. Increased winter stages are necessary to provide flow capacities beneath the ice levels for evaluation of waters for flood-control, storage and navigation flows downstream. And the particular point to understand here is that this is an operational consideration for the system that is in place.

Ice flows are influenced by fluctuating discharges. These fluctuations increase the erosion potential of these floes through the varying stages and freeze-thaw cycles.

Ice floes on the river have a significant impact on bank erosion with increased velocity of floes beneath the ice cover. And as you can see on this photograph, the effect of turbulent flows underneath the ice.

These conditions that exist are common with the present operation of the river, but were not apparent—or were not the same conditions prior to the construction of the dams. Winter was normally a time of low flows and very little erosion occurred.

Ice floes here in the Sundown Acres area contributed to the failure of a protective dike shown on this slide, constructed under the Garrison-Oahe project.

High flows and ice fluctuations contributed to the removal of stone from the end of this structure, resulting in its partial failure.

The Sundown Acres Development downstream from this structure is currently suffering severe bank erosion proceeding ever closer to the homes that were constructed some distance from the original bankline.

Bank failures, as you can see on this slide, occur year-around, but are most often apparent after the breakup of winter ice, when the undercutting of the winter flows becomes more apparent.

The resulting losses of land along the banks of the Missouri from Garrison to Oahe Reservoir are significant.

These losses include not only agricultural farmland, but native woodlands and wildlife habitat. These are lost forever to the river and will never be replaced.

Farmsteads near the river could also be affected if proper bank stabilization measures are not taken.

The Corps of Engineers has taken the position that there is no evidence that the mainstem dams have increased bank erosion. This is only true when considering an acre-for-acre basis. The fact remains that North Dakota suffers real losses in terms of land, economic and historical values with the permanent losses that now occur. Therefore, losses to North Dakota have increased, because the conditions are not the same.

The channel aggradation problem in south Bismarck has also been studied by the Corps. As the delta formation continues to grow, the flood potential in this area will increase.

Bank stabilization was considered by the Corps of Engineers as a means of reducing sediment reaching this delta formation, thus delaying the time when operational changes would be necessary. This is an indication that bank protection is part of the operational considerations for the Garrison-Oahe reach.

Existing bank stabilization structures constructed under the Garrison-Oahe and Section 32 authorities were one-time approriations and did not provide for a long-term solution for bank erosion.

Shown here are several hard points constructed as part of the Section 32 program. The maintenance recommended for many of these structures by the Corps of Engineers is to extend these structures inland to prevent failure. This, as with many other Section 32 projects, has been termed maintenance by the Corps. In reality, it is caused by a design failure or design deficiency and should be considered as such. If the structure had operated as designed, the erosion problem that is now threatening the structure would not have occurred.

The section 32 projects were experimental projects to test designs, to provide a less costly way of providing for bank protection, and some projects were bound to fail because they were experimental.

Some section 32 projects, such as this section revetment and most of the Garrison-Oahe projects have worked well in protecting areas along the banks.

Lights, please.

The Corps of Engineers uses a figure of 50 acres per year to predict future and continued bank erosion losses considering a period from 1978 to 1982. Looking at this chart from 1954 to the beginning of 1975, losses averaged 75 acres per year.

It is significant to note on this—that on this erosion data, that erosion data from 1975 to 1978 is absent. Flows that occurred in both 1975 and '76 were far above normal and erosion was significant. When asked about this gap, the Corps could not say why this data is not available.

What is important with these numbers is that the potential for erosion losses is significantly higher than these figures would indicate. With increased flows, such as those that occurred in 1975 and 1976, there is an increase in velocities in the river and increased susceptibility for major losses in areas that to date have suffered

only minor losses due to the low flows that have occurred in past years. The 1975 data may show this effect, if it had been available.

The period from 1978 to 1982 was considered a low-flow period and erosion rates were below that which have normally occurred. To base a prediction for continued losses on such figures is unreasonable.

To reference economic losses, J. A. Lietch, from the Agricultural Experiment Station, North Dakota State University, extrapolated from the 1974 values based on 75 acres per year, which yields to the 2,447-acre figure shown on the upper portion of this chart.

Mr. Lietch's economic study sets losses due to bank erosion on the Missouri River at $614,000 in gross business volume and $196,000 in personal income for 1984 alone.

Averaging values from a previous study completed in 1977, losses to the state for the eight-year period were 3.73 million dollars in gross business volume and 1.26 million dollars in personal income. These are the only losses due to bank erosion and not those from the inundation of the reservoir.

Economic losses are but part of the total losses that occur to the State of North Dakota. Loss of native woodlands and wildlife habitat and some historical areas are considerable along with all environmental concerns. The BOMMM Board has contacted the North Dakota State Game and Fish Department and the U.S. Fish and Wildlife Service about our proposal and discussed it with them and have requested them to provide written comments to this hearing.

The next thing I would like to go through is what our proposal would be to submit to this hearing on how we would like to see this—a solution be put in place for our bank stabilization problems.

Our proposal would be to change the current authorization of the Corps of Engineers to allow them to implement a comprehensive bank stabilization program, the cost of which would be allocated out to the entire Missouri Basin projects, as in the original authorization.

As can be seen on this chart, which is the most recent cost-benefit ratio for the Missouri Basin projects, the cost-benefit ratio was roughly 2.2 to 1 for 1975. The Corps of Engineers, since 1975, has not completed an update to this cost-benefit ratio, because past history has shown that it has remained about the same and has not significantly changed.

The amount that we are proposing to attribute to the bank stabilization along the Missouri River would not significantly impact the total benefits or costs from the overall projects. Note, also, on this chart that recreation benefits at 7 million dollars are not included in the cost-benefit ratio.

And just to update you a little bit from the 1975 cost-benefit analysis chart shown here, power revenues listed at 58.1 million now range in the 90 to 100 million area, and flood control—actual flood-control benefits have averaged—rather than the 32.9 forecasted in the cost-benefit ratio, have averaged 92 million dollars annually.

If allocated as proposed in our proposal that we have supplied to this hearing, the increases would only amount to one-half of one percent of the current annual power revenues generated and about six-tenths of one percent of the total federal authorization for the

Missouri Pick-Sloan project in 1985. The two-million-dollar annual cost would be charged to the total project investments, but funded through the Corps of Engineers' operation and maintenance budget. These funds would be allocated to develop the projects outlined by the Corps in past studies.

We have the map of the Missouri River here on the wall, the seven-and-a-half-minute topographic maps. On this map are located all existing projects in red and all the proposed 41 sites by the Corps in blue. As you can see, there's no intention here of channelizing the river, but strictly to protect those sites that are having severe erosion problems. Each of these sites would be developed based on the priority list developed by the Corps of Engineers in consultation with state and local officials.

The two million dollars per year allocation would result in the construction from two to four sites annually, as funds permitted. The methods of construction for these projects would be similar to those used in the Section 32 program, with the understanding that they would be least costly than other methods used, and with the lessons learned from past installations, they would provide for the desired protection that we are looking for.

In summary, the Corps of Engineers has stated that the dams are responsible for the changes in erosion-deposition process that have occurred. Past authorizations have not provided for long-term solutions and some required repairs because of the design—some require repairs because of the design problems which should have been expected with the experimental section 32 program. The problem remains and the solution is to make bank stabilization an integral part of the ongoing operation and maintenance of the Missouri Basin program. Project benefits and power revenues would pay for these project improvements. What needs to be done is clear, the question is how.

We hope that our proposal answers many of these questions. Understanding the workings of Congress, we recognize that some changes may be necessary in this proposal to be acceptable, the facts remain that these projects are providing benefits to downstream lands at the expense of North Dakota. Thank you.

Senator BURDICK. At this point I would like to ask a question and make a statement. Your idea of using power revenues has been advanced many times before, and in many cases it's been rejected. The point is that that is under the province of the Energy Committee. What I will do, I would like to have your maps, and so forth, in miniature, if I could get them, with your full testimony, and I will deliver it to the Energy Committee. It's not within our province, but we will do what we can to see that they can get a fair hearing over there. Fair enough?

Mr. GUNSCH. OK.

Mr. MORK. Senator, we will move on to Alfred Thompson. Al is a member of the Burleigh County Water Management Board, which, of course, is a member of the BOMMM group. Al is a retired attorney and judge, and he has a presentation for you on who has the responsibility for correcting this problem. So, Al.

STATEMENT OF ALFRED THOMPSON, BOARD MEMBER, BOMMM JOINT BOARD

Mr. THOMPSON. Senator Burdick and your staff. I swore that I would never read another statement, as you remember in your years of practice as a lawyer having listened to lawyers read statements, and people sat and read newspapers and fell asleep, but now with time constraints, I think I'm going to have to violate that vow and I'll read my statement. This is a rather hastily drawn document, but not nearly as hasty as the one that I just had dumped on me, and you will hear that later.

This I am entitling the ethical and legal considerations which must be confronted in this situation.

My name is Alfred Thompson. I live in Burleigh County, in the environs of Bismarck. I am a member of the Burleigh County Water Resource Board and presently serve as its chairman.

A water resource district is a statutory body, and has as its purpose the protection of public waters, both surface and subsurface, as they are found within the boundaries of the district. The Missouri River flows on the western boundary of Burleigh County, and, therefore, falls within the protection and the purview of the Burleigh County Water Resource District.

Documentary and oral testimony will be received by you on three particular areas amongst many others that we have that are problem areas in our country. Fox Island, I understand Mr. Mills will testify on that; Sundown Acres, there will be testimony by a Mark Oswald, who is a resident there—or one of his neighbors; and I have asked to make a presentation on Sibley Island, which was to have been given by Russell Stuart, but he has deferred to me because of time constraints.

I wish to speak generally about the Missouri River as it poses problems to this resource district, Burleigh County and its citizens.

Two fundamental postulates must be remembered in your consideration. First of all, the Missouri River is a navigable stream, a property of the United States of America and in its jurisdiction.

Secondly, the Missouri River was a free-flowing stream until the interference by the United States Government under the Pick-Sloan plan, also known as the Flood Control Act of 1944.

The Pick-Sloan plan contemplated five fundamental features: Flood control, navigation, irrigation, recreation and hydropower production.

The latter was not within the contemplation of the project as was originally planned, but was added principally as a means of liquidating the costs of the project, including land acquisition and costs of construction. But hydropower production has proven to be the most important of the five segments because it is the only cost segment which actually returns to the government an accountable cash benefit. The others, as I understand it, do not return anything to the government in the form of cash flow.

The Pick-Sloan plan has never been completed. In your considerations, it must remain clear that we are not here talking about repair. We're talking about a project that was either not completed or was improperly done. The project was either not properly planned and engineered, in the first instance, or the potentialities

for future erosion of stream banks was known, but not revealed to the public.

In either case, the injury to North Dakota, its people and its property constitute a continuing loss and an ongoing problem to the State of North Dakota and its people. These problems and losses are created directly by a property of the United States.

At a previous meeting of the Corps of Engineers with North Dakota agencies, the Corps informed us, A, that it has no budget to compensate for injury caused by stream bank erosion or to mitigate that erosion. Yet, the government of the United States continues to derive vast monetary benefits from hydropower production and sale, as well as other non-cash benefits from flood control, navigation, irrigation and recreation.

Accountable cash benefits in themselves, A, create the budget out of which expenditures must be made to complete the project and maintain it; B, mandate downstream protections which we seek and are entitled to. This is so because power generation must, obviously, depend on the discharge of water which has a highly increased silt-bearing capacity, the principal cause of stream bank erosion in our area and in others. Stream bank protection is as much a part of the cost of hydropower production as is clean air in thermal power production. And you're well acquainted with the constraints that are now being placed upon thermal generation.

Thirdly, burdens are created which inevitably flow with benefit. This is rudimentary. One cannot enjoy the benefits of a program without meeting the burdens that run with it.

The Corps says it has abolished the division or agency which in the past had overview of stream bank erosion.

For reason of plain common sense, this argument simply cannot stand. No one, not a person, nor an agency of government, can insulate itself from liability for fault, or from the burdens of contract, simply because no agency remains to correct the fault or to comply with the obligations of contract. The obligation is there and it must be answered by the osne who created it. This is particularly so because the benefits continue to run to the government of the United States.

Further, it is a recognized rudimentary law, historically accepted in every jurisdiction, that one who tampers with an existing condition remains liable for all the consequences which flow from that tampering, whether such consequences are foreseen or whether they are unforeseen. This maxim is as apropos between the government and its peoples as it is between one person and another. Any assertion that liability can be avoided simply because the one that is obligated has abolished the agency to control the wrong is a ridiculous legal fantasy and a corruption of a moral obligation.

North Dakota has assumed the obligations of stream bank protection by virtue of an ABC agreement which was entered into in 1963. This was purported to me by Governor Guy.

To this our response is threefold. First, the purported agreement speaks of maintenance of existing structures. Those are jetties, riprap, and so forth. It does not speak of liability for stream bank erosion, which may be the product of the inadequacy of those structures in the first instance.

Secondly, the ABC agreement was urged upon the State of North Dakota as a condition for the performance by the U.S. Government of other things vital to the project. Governor Guy has termed this rightfully a shotgun in the ribs exaction of a promise in a desperate situation.

Thirdly, the eventual obligation and suffering falls upon the Burleigh County Water Resource District, which is not a party to the agreement and should not be bound by it.

Now, as to Sibley Island Park. This is a public park owned and operated by the county. The Corps says it can find no benefit-cost ratio which would support its obligation to control the massive stream bank erosion which you've seen on the video and on the slide. And this threatens the entire park. It says this despite sits contractual promise to protect all public areas from stream damage. And you will find a letter to that effect in Exhibit A, which is attached to my testimony.

The Corps acknowledges that this pristine ecological area, the last remaining publicly owned Missouri River bottom land in the same relative ecological condition it was when Custer and his troops passed through the area, is now being consumed by stream bank erosion. The Corps relies on what it calls the yardstick excuse to avoid its contractual obligation, saying that if a ten-million-dollar building were threatened, it would have that yardstick, and it would have no problem of trying to compensate for the loss. That this is a violation of both moral and written contract is so elementary that no further enlargement need be made.

We believe the relationship of the federal government to its states and to its people is held together by the glue of respect for promises, both written and moral, and that as long as we and the government treat these obligations which run between us as inviolate, our relationships will remain good. We firmly believe that we have fulfilled our obligations under the Pick-Sloan plan, but that the government of the United States has fallen short.

On behalf of the Burleigh County Water Resources District, I wish to thank you, Senator Burdick, and your staff for the opportunity of appearing before you.

Senator BURDICK. As usual, you have been very convincing.

Mr. THOMPSON. We try hard.

Senator BURDICK. Andy, do you have some more witnesses?

Mr. MORK. No. We did have some more, a couple of them are out of town today, and so we're going to leave it at that.

In the time left, I want to give some summary remarks, though, before I go off.

Senator BURDICK. Absolutely. You have time left.

Mr. MORK. But because of the time constraints here—we could have had a hundred people parade in front of you and tell you their personal things. In fact, I had a person call me up last night, and he said, "I've never seen that river so wild in all the years I lived by it as it is now." It is high this time of the year, of course, for the high flows and it's doing a lot of damage right today as we sit here. So we're asking these people, though, to submit statements to you. I understand the record will be open for a couple weeks yet, and whatever, and I'm sure you will be getting a lot of them.

Ms. HAUNSON. You will have time today if some of them are here.

Mr. MORK. I'll do that. I tell you, I'll summarize my remarks and then if there are some here that want to fit in, that will be fine.

We have furnished your committee with a book already, and we're going to have a supplement to that. W'll include all of our statements here today, and so on, that we'll furnish you afterward, so you will have a complete record of our presentation in that.

But I want to summarize a little bit and give a couple more remarks here on the thing. I'll try not to repeat, if possible, but the bottom line, I think, is that we have some differences with the Corps about how they calculate how many acres are being lost, but I guess that's really not as important as the fact that they are being lost and they will never be returned like in the old days before, when the river was in its normal state. And as Al has so eloquently stated, that it's only simple logic then that whatever, whoever, causes the problem are liable for it, and we feel it's just simple justice that it should be done that way, that it should be charged up to the cost of the Pick-Sloan project.

We're sitting on a time bomb here, almost. Mike showed you a chart of the land losses that we've had, and we've never really had any big flow years. The Corps or any engineer can look at the stream, they measure it by the hundred-year flow cycles that can happen, the worst thing that can happen in a hundred years, and in order to calculate logically how much erosion we can have, you've got to include that hundred-year history, too. In fact, you should take the total losses for a hundred years and divide it by a hundred to come up with the average rather than take four years and extrapolate it out to come up with some kind of a figure. But, anyway, it is happening.

The Oahe delta down here, too, is a very serious thing. There is only three ways that that can be cured. One is by buying out the land; the second way is by structural methods, and the Corps has made some studies on that; and the third is to reduce the operating level of the Oahe Reservoir so the delta area is moved downstream into the headwaters of the Oahe and down into land that has been purchased by the Corps. Any of those three methods are extremely expensive.

By furnishing bank protection, we do not say that it will cure the delta or stop its formation, but it will delay the time when it becomes critical. We think this is awfully important, and that translates into a lot of dollars, too.

In our testimony furnished to you—and I think this is very important, our testimony today is that the organizations that have furnished resolutions in past years on this issue—the North Dakota legislature, they haven't passed one through yet this year, it's going to be heard tomorrow morning, but it's similar to the one that was passed a year ago, and it concurs with our feelings here. The North Dakota Water Users Association has one and then you get into this group of rural electric cooperatives, the North Dakota Association of Rural Electric Cooperatives, Midwest Consumers Association of Denver, Colorado, Basin Electric Power Cooperative and Central Power Cooperative, to name some of them, have all passed resolutions strongly supporting this.

And, as you know, the rural electrics, and I proudly say that I was a part of them for many, many years, are a group that do assume responsibility. They were the chief ones in North Dakota to advocate a coal mine, stripmined land reclamation program which cost them a lot of money, but they left the land in a shape that they're proud to leave it. So they are responsible people, and I think there's some here that will say that. So, I don't know, I thought this was very important.

The other thing I think is extremely important to our discussion here today, is the recent action by the Missouri Basin States Association. It's an association of all the states along the Missouri River from Missouri all the way to Montana. And they recently—well, after the conference they had last April on stream bank erosion and degradation, et cetera, they have come up with three recommendations, and they're recommending that all the adverse effects of the Pick-Sloan plan should be assumed by—should become a Federal responsibility. And they're saying that cost-benefit ratio on these projects should not be site specific, but should be projectwide oriented.

I think those two things are extremely important, and here is a group that represents a lot of states, the officials of a lot of states—so I think this is an extremely important development in our deliberations here today, in the past and in the future.

Now, to put this whole thing in perspective, they told you that the cost of what we're looking at today is 26.8 million dollars, although we're not recommending 26.8 million dollars. We're recommending an ongoing program of approximately 2 million a year. And that's a lot of money by anybody's token, but to put it in perspective, this will be in the record, too, financial aspects, North Dakota losses since the installation of the Garrison—since the Pick-Sloan project, 550,000 acres of land, and a study by the Economics Department of the North Dakota State University have calculated a one-and-a-half-billion-dollar land productivity and a 4.5-billion-dollar gross productivity losses to date. Of course, that continues to accure. North Dakota has lost—in effect has lost 4.5 million tons of coal that cannot be mined because they're underneath the reservoirs. Of course, there's valuable oil resources underneath Lake Sakakawea, too. They can be drilled by offset drilling, but it's going to be very, very expensive and may lose the development of a lot of that.

It's already been stated that because of the crumbling banks, and so on, that we haven't been able to develop the remaining bottom land like it should be, for whatever reason, irrigation and even recreation. It's hard to find boat ramp sites, and so on, on the river—to get to the river. And the Missouri has become a very important recreation area for central North Dakota.

The recent committee of the Garrison Diversion Study Commission have recommended 79 million dollars of benefits to the Indians in North Dakota for losses they sustained by the installation of the Garrison Dam. Again, that's over and above what they were paid for—the compensation of land for when it was purchased.

North Dakota was promised a one-million-acre irrigation project, the Garrison diversion project. Of course, we all know the history of that. It was cut down to 250,000 acres, then here recently

reformulated into a little over hundred thousand acres and a municipal water project. The sad story on that is that the funding for that is almost nothing this year. Hopefully, that will be increased. But that just shows that this was—this thing that was promised North Dakota as compensation for the losses apparently will never be developed, at least not in the scope that it was promised originally.

25 percent of the Pick-Sloan electric power produced at Garrison and—25 percent of the total Pick-Sloan electric power is produced at Garrison and 28 percent at Oahe, yet North Dakota to date has received only 11 percent of that power. Pick-Sloan revenues—the total power revenues averaged between ninety and a hundred million dollars per year.

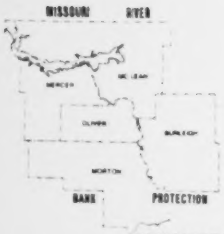
Now, let's look a little at downstream benefits. The Corps of Engineers' figure last spring, and they will concur with that, I'm sure, is the downstream benefit because of the alleviation of flooding, has accrued up to $3,025,000,000. Of course, that continues every year, all the years that we had flood problems. The rest of it's a little hard to define in dollars downstream. But we know that the complete installation of a complete navigation system and its maintenance all at federal expense has been a tremendous asset to the downstream areas.

The channelization of the downstream river has protected the banks. The navigation provides this region with huge freight rate benefits to its agriculture and commercial sectors. Protection of the banks and reduction of flood threats has allowed the intense development of the flood plain for agriculture, industry and public use. Personal income, real and income taxes have greatly increased, and all this continues to accrue downstream. Of course, we say the downstream interests have and are receiving an inappropriately large share of the power generated at Garrison, and the other Pick-Sloan Dams.

So that kind of puts the thing into perspective about dollars and cents. If you compare losses and gains, and so on, we still are like—I think it's like the little match girl from Charles Dickens tales about from the outside looking in, you see all the riches that these people on the inside or south of Sioux Falls have achieved by this project, and we're out in the cold and waiting patiently, I guess, for our turn to come.

So that's the reason that—the whole reason of this—our efforts through to date, Senator Burdick and members of your staff. We hope that—here it's 1987 already, time is going by, land is being lost, we hope something can be done to get on track and get this finally done so that North Dakota can finally have some goodies out of this really magnificent Pick-Sloan project. It's been a great thing for our Nation, but North Dakota, it's about time North Dakota gets a fair share of the benefits too.

[An attachment to Mr. Mork's statement follows:]



B·O·M·M·M—JOINT BOARD

Dedicated to the Protection and Preservation of the Banks of the Missouri River.

FINANCIAL ASPECTS OF THE CONSTRUCTION AND OPERATION OF THE PICK-SLOAN PROJECT

Prepared By: BOMMM JOINT BOARD - February 11, 1987

North Dakota Losses:

--550,000 acres of land for Garrison and Oahe Dams and Reservoirs

--$1.5 Billion land productivity and $4.5 Billion gross productivity losses to date:
SOURCE: Impact of Inundation on North Dakota Economy by Leitch and Anderson and Economic Activity Associated with Garrison Diversion Unit in 1984 by Leitch and Schaffner. North Dakota State University Agricultural Economics Reports No. 127 and No. 190.

--Loss of 4.5 billion tons of coal under Lake Sakakawea that cannot be mined.

--Loss of or expense drilling of oil resources under Lake Sakakawea.

--In the Garrison to Oahe reach of the Missouri River, the crumbling banks have reduced the value of the land and the river because of the inability to install permanent irrigation pumps or boat ramps.

--A recent Committee of the Garrison Diversion Study Commission has recommended $79 million of benefits to the Indians of North Dakota to reimburse them for losses sustained as a result of the installation of the Garrison Dam. This is over and above any compensation they received for sale of their inundated land.

North Dakota Gains:

--North Dakota was promised a one million acre irrigation project (the Garrison Diversion). This was reduced to 250,000 acres before any funding was secured in 1965 and in 1986 the project was reformulated and changed to a much smaller irrigation and a municipal water project. Present funding is almost nil.

--Although 25% of the Pick-Sloan electric power is produced at

Garrison and 28% at Oahe, North Dakota has received only 11% of all power produced to date.

--Total Pick-Sloan power revenues average $90 to $100 million per year.

Downstream Benefits (Sioux City to St. Louis):

--$3,025,000,000 flood losses prevented to date and continuing to accrue (Corps of Engineers figures)

--Installation of maintenance of a complete navagation system all at federal expense. The channelization of the river provided complete protection of the banks. The navagation provides this region with huge freight rate benefits to its agriculture and commercial sectors. Protection of the banks and reduction of flood threats has allowed the intense development of the flood plain for agriculture, industry and public use. Personal income, real and income taxes have greatly increased and continue to accrue.

--This south area have received and are receiving an inappropriately large share of the Pick-Sloan produced electric power.

Mr. MORK. But now if time permits, I know there are landowners here that, like you say, if they have a little time to stand up and introduce yourselves and say a little about your particular problem.

Senator BURDICK. We have a little time left. We will entertain a one-minute speech.

STATEMENT OF ROBERT WEISGARBER

Mr. WEISGARBER. I'm Robert Weisgarber, from Washburn, North Dakota. I farm directly across from Washburn, on the Hensler side and west of the Missouri River bridge, up there on Highway 200.

I've got some pictures here. I have 2 miles of river front. They have bank stabilization on the opposite side, and I would like to have Senator Burdick look at these, and it will show you what happens when they take care of it on one side and they don't on the other. Thank you.

Senator BURDICK. If it's okay with you, I'll make it part of the file.

Mr. WEISGARBER. You bet. Take them along.

Senator BURDICK. They will be made part of the file. Any other one-minute speeches?

STATEMENT OF MAMIE GRANT

Mrs. GRANT. I'm Mamie Grant, from Stanton, North Dakota, and I have wrote to you quite a few times; I think you remember. But I think in the last so-many years, 15 or so, we've lost about 100 acres of land. I live 12½ miles below the Garrison Dam, 4 miles up from Stanton. It's on the Missouri River. And the banks there are terrible. I have pictures, but I left them at home.

Senator BURDICK. If you have any pictures, mail them.

Mrs. GRANT. Okay. I'll sure do that.

Mr. BURDICK. Anybody else?

STATEMENT OF RANDALL BINEGAR

Mr. BINEGAR. My name is Randall Binegar. I'm with the State Water Commission. And I have currently been involved in the design of a bank stabilization project for an area just north of Bismarck approximately nine miles, in Sundown Acres Subdivision.

Mark Oswald, a landowner up there, was going to be here today to testify, but at the last minute he got called out of town.

The Sundown Acres area was protected by a Corps of Engineers' bank stabilization project. It was a dike extending out into the river. The dike failed a few years back, and since that time the Sundown Acres area has been subjected to an intense amount of erosion. Some areas have lost ten to twenty feet in one year. And the project that's currently being designed up there is over an area that covers approximately ten to twelve lots, and ten to twelve landowners will have to share the cost of the bank stabilization project, which is currently estimated at approximately $108,000.

Senator BURDICK. Anybody else?

STATEMENT OF CARL ROBERTS

Mr. ROBERTS. I'm Carl Roberts, from Devils Lake, North Dakota, Route 5, Box 361.

Can I tell you what I thought about when I come in here?

Senator BURDICK. Of course.

Mr. ROBERTS. All right. I thought you don't know, Senator, and you know you don't know, anybody who rents a shoebox for a crowd in North Dakota on water problems, by golly. Come on up and we'll fill up the Burdick Arena for you up there, because we have got problems.

And believe it or not—Arlene, you write this down now, too—that in my coffee water—I'll invite you up for a cup of coffee, and we'll pour out, get pure water that I'm drinking, and in my coffee cup is stuff that you can see. You don't have to muddy the water with coffee. You can see what's going through. And, boy, that water up there is terrible. And we have been working on it since 1960, and we haven't got it done yet, by no means. We just have got started. So we've got problems. And there's no use in trying to tell you in an hour, you couldn't do it then, you see. But we can show you.

I live on Highway 20 South, and back off the land going back up from Highway—you have been by on Highway 20 South, have you not? You see the land going up there, and the sewage is coming out from there step-by-step down to my well, and then there's nobody out in front. The highway is out in front of us, down to the ditch and then out into the—well, I can't say where, because it might incriminate myself. But you can go there. And Devils Lake has 7,500 people, and they have got to get rid of their sewage, too, and it goes the same place. I think that's enough.

Senator BURDICK. Thank you. This group's time is about to expire. We can take one more one-minute speech.

STATEMENT OF JERRY CLOOTEN

Mr. CLOOTEN. Senator Burdick, my name is Jerry Clooten. I live north of Bismarck here, just south of Sundown Acres. And as he was talking here about the riprapping they had done several years ago, ten years ago, they riprapped right up to my property and then quit. That was all the funds that they said they had. And I was the person that called Mr. Mork last night and told him that I have never seen this river as wild as I have seen it this year. I've lived there 21 years, and to me the river up there is getting wider and wider and shallower and shallower. I can't imagine how much land I've lost. I had a horse and I had it all fenced off over the river. The fence and everything is gone in the river. So something has got to be done about that river. It's no good the way it is.

Senator BURDICK. How is the area that's been riprapped? Has that been protected?

Mr. CLOOTEN. Yes, that's fairly—where it really raises in the wintertime is when they raise it up so much, then in the spring when it thaws out and goes, the bank crumbles right with it; the ice and everything takes it right up. That's where most of it has been taken. But where this ice—in fact, last year they had the ice up over the top of this riprap, and I stood there and watched one

big, huge chunk of ice when it rolled into the river. There was a big rock frozen into the ice, and down the river it went. So that's—this raising this river like it is, as high as they do every winter and then when they drop it in the spring, there goes the bank. Thank you.

Senator BURDICK. I'm very, very familiar with how the Missouri operates. We had some land in Williston, North Dakota, below the city. Do you know where that land is now? It's over in McKenzie County.

Mr. CLOOTEN. Down here at the headwaters.

Senator BURDICK. If that's all, why, thank you, Andy, for your presentation.

Mr. MORK. Thank you very much, Senator, Arlene.

[Mr. Mork supplied the following:]

B·O·M·M·M—JOINT BOARD

Dedicated to the Protection and Preservation of the Banks of the Missouri River.

February 18, 1987

Honorable Quentin N. Burdick
United States Senator
451 Russell Building
Washington, D.C. 20510

Dear Senator Burdick:

The BOMMM Joint Board wishes to express our appreciation to you and your staff for holding the February 11th field hearing in Bismarck so North Dakota could express its concerns regarding the ongoing Missouri River bank erosion problem. We especially appreciated your sharp questioning of the Corps which resulted in several good statements entering the record. We feel that as much or more than we expected was accomplished at the hearing. It was unfortunate that the hearing room was too small to accommodate all who came.

I disagreed with two statements General Dominy made. I have written to him to express our differences. A copy of these letters are attached and will explain our concerns. The General's statements are indicative of the attitude the Corps has regarding our problem. They glibly state that erosion was worse before the Garrison Dam and that any erosion problem should be locally solved. This certainly is in contrast to their attitude toward the lower Missouri! Please enter these two attached letters under Tab F in the orange notebook we have previously sent you so they can become part of the field hearings records.

We hope the suggestion of Thomas Skirbunt of your Environment and Public Works Committee, to submit this problem to the GAO for their determination of whether or not this erosion problem is a federal responsibility, can become productive. In the meantime we are open to any and all other ideas you and your staff can suggest. We also are ready to contribute any help you may require either in Bismarck or in Washington.

Again, thanks for your efforts.

Sincerely,

Andy Mork

Andy Mork
Chairman

AM/mll
Enclosures (2)

B·O·M·M·M—JOINT BOARD

Dedicated to the Protection and Preservation of the Banks of the Missouri River.

February 18, 1987

Brig. Gen. Charles Dominy
Division Engineer
MRD, Corps of Engineers
Box 103 Down Town Station
Omaha, NE 68101

Dear General Dominy:

The BOMMM Joint Board appreciated you and your staff attending the Senator Burdick field hearing in Bismarck on February 11, 1987. Hearing the live testimony is always much better than reading a transcript and the opportunity to react to testimony and questions was a very important part of the hearing. There were two statements you made that, while on a true or false evaluation would be called true, can best be described as taken out of context, and were very misleading without further explanation. It is the purpose of this letter to call your attention to these incomplete statements.

You stated that "the bank erosion in the Garrison to Oahe reach is less now than before the installation of the Garrison Dam". I replied to Col. William Andrews on March 10, 1983, on this same subject when I first read the report from which, I presume, you and your staff are still quoting. (A copy of the 1983 letter is attached.) I define your statement as very misleading for the following reasons:

1) In pre-Garrison times there was equal accretion in acreage and land type to erosion losses so that there was no net loss of land then as compared to a real loss of prime land now. (The prime land losses now are being replaced by almost useless, unvegetated and vegetated sandbars.)

2) Your study is flawed since no consideration is given to the land that would have been lost if the erosion control project now in place would not have been constructed. These projects were installed in the most critical locations and losses would have been much greater if they were not in place. Allowances for these averted losses should have been made when making the comparison.

3) Your study is also flawed since it is based on not enough history. The rate of erosion is exponentially proportional to the rate of water flow times the duration of that flow. Thus, the 75 to 100 year events will have a dynamic influence on erosion losses. A valid annual post-Garrison land loss statement should be the losses expected in a hundred year period divided by one hundred.

4) I presume the pre-Garrison losses in your study were calculated from aerial photos since you didn't have other studies in those years. It is very difficult on those old photos to distinguish between vegetated sandbars and prime upper bottom land. I would like to know more about your methodology used before I would accept your pre-Garrison loss figures.

You also stated that "Bank stabilization is usually a local responsibility". Again, this a valid statement and we would agree that, on an undisturbed river, local cost sharing and maintenance are appropriate. However, the Garrison to Oahe reach is no longer a natural river, but has become a conveyance to transport the releases from Garrison at a time and in amounts most advantageous to navigation, power generation and downstream flood control. Your statement, therefore, is not appropriate for this reach. I especially noted this statement because it illustrates the difference we and the Corps have. The Corps persists in regarding the Garrison-Oahe reach as a natural, undisturbed river and we in North Dakota know it is an altered river.

We hope that when you and your command use the above statements they are always qualified by the above caveats. We look forward to working with you to solve our mutual problem

Sincerely,

Andy Mork
Chairman

AM/mll
Enclosures (2)

cc: Col. Steven G. West
Senator Quentin Burdick
Vern Fahy

MISSOURI RIVER
BASIN PROTECTION

B·O·M·M·M—JOINT BOARD
1022-8th STREET NORTH
BISMARCK, NORTH DAKOTA 58501
TELEPHONE(701)663-3840 or 223-8346

March 10, 1983

Colonel William R. Andrews, Jr.
Corps of Engineers
U. S. Army District - Omaha
ATT. MROED - HB
6014 U. S. Post Office
215 North 17th Street
Omaha, NE 68102

Dear Colonel Andrews:

We recently received and reviewed a copy of your Final Report to Congress, Appendix E, Missouri River Demonstration Projects, Volume 1 of 2.

The Report with one major exception is well written and contains considerable information and data interesting and valuable to us. The exception is in Table 1-4 on page E-1-13 and it is the purpose of this letter to call your attention to the misrepresentation of facts portrayed in this table.

The table indicates that during pre-Garrison Dam conditions from 1938 to 1954 there were 3,561 acres total erosion losses or an average of 222 acres per year in the Garrison Dam to Oahe Dam reach of the river. We have no reason to doubt the accuracy of this statistic and do assume that it is true. However, we all know that during this time when mother nature was operating the Missouri River there was also a corresponding accretion of land similar to that lost so the net loss of land was actually zero.

Also, the table indicates that during post Dam conditions from 1954 to 1975 there was a total loss of land of 1,692 acres or 80 acres per year. I do assume this statistic is also accurate. However, during these years you have installed considerable bank protection projects and we know this figure would have been tremendously higher if these projects were not in place. For example, in my area (Township 140-81) where your first project was installed, several thousand acres were

saved from imminent loss. Also as more land is lost there is simply not as much land available to be eroded so that we can expect lower annual losses as the years go by.

Your Table 1-4 portrays the bank erosion losses in this reach of the river as much less after the installation of the Garrison Dam. For the above stated reasons we know you will agree this is simply not the fact.

That is why we have characterized this Table 1-4 as misrepresentation. We do request that you issue a clarification addendum to this Report and send it to those who received the Report originally. Failure to do this will give an obviously erroneous impression to those utilizing this Report.

You may remember that our BOMMM Joint Water Resource Board is in the process of mounting an effort to encourage the completion of bank protective works in this reach of the Missouri River. This misrepresentation of facts, which we are criticizing in this letter, is not helpful to those who are striving to evaluate the history and the status of our River.

Sincerely,

Andrew Mork, Chairman
BOMMM Joint Board

AM/mll

cc: Senator Mark Andrews
Senator Quentin N. Burdick
Congressman Byron L. Dorgan
State Engineer Vern Fahy

Ms. HAUNSON. We have more seats up here, but we would have time for a five-minute break, if you would like to get up and stretch. We have coffee out in the hallway and we will resume the hearing.

Senator BURDICK. Five-minute recess.

[Recess taken.]

Ms. HAUNSON. We would like to resume the hearing as soon as everyone is seated. And there are extra chairs up in front here. There are some people out in the hallway, and there are extra chairs up in the front.

Senator BURDICK. Do we have Ray Griffin, Fred Selberg and Robert Thompson at the table now?

Mr. CONNELL. Ray Griffin couldn't attend.

Senator BURDICK. Just identify yourself and your location.

Mr. CONNELL. We're with the Billings County Water Resources. This is Ludwig Buresh, another member, and Richard Lazarenko, from Medora. He's on the city council.

And we have the water problem there with the river erosion.

Senator BURDICK. All from Medora?

Mr. BURESH. Billings County area.

Senator BURDICK. Billings County. Okay. Proceed.

STATEMENT OF LUDWIG BURESH, MEMBER, BILLINGS COUNTY WATER RESOURCE BOARD

Mr. BURESH. Senator Burdick, my name is Ludwig Buresh, a member of the Billings County Water Resource Board.

As a member, I am aware of the problems along the Little Missouri in the Medora area. The lagoon at historic Medora is being threatened. Farmsteads are every year closer to the riverbanks. Valleys along the river will someday be nonexistent if the river stabilization is not done. We also have oil reserve pits along the bank that are being washed into the river flow, which eventually ends up in the Garrison Dam. I believe in conservation practices out on my farm, and I believe we have to apply them to our riverbanks, also.

Along with that I would like to call on Zeke Lazarenko to tell us about the problems we have in the Medora area.

STATEMENT OF RICHARD LAZARENKO, PRESIDENT, CITY COUNCIL, MEDORA

Mr. LAZARENKO. My name is Zeke Lazarenko. I'm president of the city council in Medora. And I brought an aerial photo along, and it might be refreshing to the Corps and to you, Senator Burdick, that we aren't blaming this on anybody—the erosion.

We have a lagoon system—let me get this straight here—right in this area here. Now, we took points there of measuring. This photo was taken in 1951. I took some measurements off a 1983 photo in comparison to this. There has been a hundred and—roughly 155 feet of erosion in this point here. There has been a little less erosion here. This is eroding at the rate of about five feet a year. This is eroding here at about a rate of two feet a year. So the higher the bend of the river, the more the erosion.

We have a three-cell lagoon system here, and we are in the process now of laying the groundwork to move the lagoon, because it is going to be in the river at that rate within a couple years. And what we're asking for is aid in stabilizing the bank and in relocation of the lagoon system. We know that Medora is a showplace for North Dakota. We would like to continue it that way. And we also know this is a scenic river—designated as a scenic river, and we have to purify that water quite well with our lagoon system. Because of the low flow of water here in the summertime, we have trouble meeting the requirements. So what our testimony is here today is to try and get some help and expertise on stopping the erosion and, also, if we could get financial help.

Senator BURDICK. You're part of the Missouri-Mississippi system.

Mr. CONNELL. Now, this over here, when I was quite a lot younger, was right up against these trees here and it was about this wide. It's has moved over more than double the width of the river.

Mr. LAZARENKO. About 660 feet it's moved over.

Mr. CONNELL. And we have another location just south of there, near the Badlands Bible Camp, where it has moved over much more than that. It's also gotten an oil well site—taken half of an oil well site out of there.

Senator BURDICK. How far is that bend in the river from the town?

Mr. LAZARENKO. It's right in the town. Right on the south part of town.

Mr. CONNELL. Right on this side of town here.

Mr. LAZARENKO. Like I say, this is a '51 photo and it doesn't show all this. Here is the main town of Medora right here. This is all built up here now, too.

Senator BURDICK. Do you have a reduced size of that photo?

Mr. LAZARENKO. No, but I could get one.

Senator BURDICK. Get one and we'll make it part of the file.

Mr. LAZARENKO. Thank you very much.

Mr. CONNELL. This is where the road comes along—or did come along and they moved it over here. This road has been moved back up the hill three times, and it's just barely passable now.

Senator. BURDICK. You got your record. We'll see what we can do.

Mr. LAZARENKO. Thank you.

Senator. BURDICK. Sheyenne, Maple River witnesses. State your name and your address, even though I know them.

Mr. SELBERG. I'm Fred Selberg, and I live in southeast.—I'm from the Cass County Joint Board. And I would like to introduce Ken McIntyre, Harry Warner and Bennett Rindy. I would like to call on Ken first.

Senator BURDICK. Welcome to the committee.

STATEMENT OF KEN McINTYRE

Mr. MCINTYRE. Senator Burdick, I think we want to take a few seconds to recognize your father, who I knew real well, who began to serve North Dakota in 1938 in Washington, and I think he served until 1958, when his son, Quentin, took over. And in 1988, the Burdick family will have served North Dakota in Washington

50 years. It's quite a recommendation for a family, and we're very honored to have an opportunity to appear before a Senator who now is the envy of many other States. Thank you, Senator.

Senator. BURDICK. That's pretty heady.

[Applause.]

Senator. BURDICK. Thank you.

Mr. MCINTYRE. We have a very few minutes, and what we would like to do this morning could probably take an hour or more. That we're appearing as the three water management boards that are directly affected by the West Fargo bypass.

We are here in support of that bypass, because it's a city of a growing population that would like to be removed from the floodplain. In so doing, we do have some things to take into consideration, and one of the important things to our three boards is the Maple River part of the project. It's very important, in fact, it's imperative that we try and keep this part of the entire project because of the effect it has on people north of West Fargo, the effect that it has on the particular district that I serve, the Water Management District.

The Maple River in flood stage breaks over into our area and does tremendous damage. This damage can be controlled by controlling the flows on the Maple River, which contribute more to the flow of the Sheyenne than the Sheyenne River, itself, at flood time. And without wasting any of our precious five minutes, I'm going to let Harry take over here, and it's his water management district that will have the dam that we're proposing on the Maple River, and Harry will give you some of the figures. The first step is okay.

Ms. HAUNSON. You would be permitted a few extra minutes or two. We're running a little early.

Senator BURDICK. My question won't count as time. The first step is all right. Proceed from there.

STATEMENT OF HARRY WARNER, CHAIRMAN, MAPLE RIVER WATER RESOURCES BOARD

Mr. WARNER. I'm Harry Warner, Mapleton, North Dakota. I'm chairman of the Maple River Water Resources Board. Just a few figures on the Maple River Dam and its location. The dam will be located about four miles north of Enderline, North Dakota, and ten miles east, right on the Maple River. The size of the dam will be about 35 to 50 thousand acre-feet. We feel that the flood—the 1975 flood would have been held right behind this dam if it had been built at that time. Also would have cut flooding to the City of Mapleton and flow into the Sheyenne River about 20 to 30 percent.

Also, the Maple River will flow about 11 to 12 thousand cubic feet, where the Sheyenne flows 2,800 to 3,500 acre-feet per second. We feel our dam would help flooding north of West Fargo and further north. And annual loss to the State of North Dakota and Minnesota on both sides of the Red River right now is 60 million a year, which is a pretty good-sized loss. And we feel that we really need a bypass at West Fargo to help our dam. I would like to thank you, Senator, and the other committee for giving us permission to give you these facts and figures.

Senator BURDICK. Anybody else?

STATEMENT OF FRED SELBERG, CHAIRMAN, SOUTHEAST CASS WATER BOARD

Mr. SELBERG. In accordance with what Harry has said and Ken, I am the chairman of the Southeast Cass Water Board, which is the area around Fargo and Harwood, in the lower level of the Maple River. About two years ago we were able to defeat resolutions in favor of this project be it that the Maple Dam was included in the Sheyenne diversion, and there was some 17 resolutions that were signed by townships, cities, counties and regular joint board, also. We are able to get this to court so this project could be authorized. And with that, you can kind of get the feeling of the community, that they're in favor of providing we get the Maple Dam. Otherwise, I guess I'm in hot water.

Mr. MCINTYRE. We all would be, Senator, because what we're proposing will benefit everybody from Fargo to Winnipeg. The Sheyenne River is 20 percent of the flow of the Red River, and if we can control the tributary that contributes to the Sheyenne, we've helped a lot of people.

Senator BURDICK. You made a good argument.

Mr. MCINTYRE. Thank you.

Mr. SELBERG. Bennett Rindy, he will be next.

Senator BURDICK. Excuse me.

STATEMENT OF BENNETT RINDY, RED RIVER JOINT WATER MANAGEMENT BOARD

Mr. RINDY. I'm Bennett Rindy, from the Red River Joint Water Resource Board. Bob Thompson was supposed to be here, but he has got a good case of laryngitis, so I'm filling in for him, along with Bob.

The Red River Joint Water Resource Board consists of 13 water resource boards from 10 North Dakota counties of the Red River watershed located from South Dakota to Canada. The joint board provides matching funds to local water resource boards for the construction of water retention projects that provide benefit over a regional area. We also deal with Federal and State governments and agencies ensuring projects be built according to recommendations by the local water resource boards.

The Maple River retention project is considered a high-priority project for funding by the Red River Joint Water Resource Board and should be constructed at the same time as the Sheyenne diversion and bypass are constructed. Public opinion is strongly in favor of the entire project being built at the same time. The Maple River component, authorized by the 1986 Water Resource Development Act, is not funded. We need funding and construction of the Maple River retention project. The local water resource boards of the Red River Joint Water Resource Board have funded and constructed the project in two years; however, the cost of this project is too high for local, regional and state funding and thus we must have federal funding to get this project built.

Projects of this caliber, 35,000 acre-feet, do the best job of reducing flood damages on the Red River. Therefore, the Red River Joint Water Resource Board strongly recommends the Sheyenne diver-

sion and bypass and the Maple River retention project be completed as one project.

Mr. SELBERG. Thank you, Senator, for the opportunity of being before you.

Senator BURDICK. Thank you. Is Bill Ueland here?

Mr. UELAND. Kermit Ueland.

Senator BURDICK. Kermit. Excuse me.

STATEMENT OF KERMIT UELAND, PRESIDENT, ASSOCIATION FOR THE PRESERVATION FOR THE SHEYENNE RIVER VALLEY

Mr. UELAND. Senator Burdick and staff members. I represent the Association for the Preservation of the Sheyenne River Valley, and we are opposed to the five-foot raise of the Baldhill Dam/Lake Ashtabula flood pool level. Besides our wish to preserve one of North Dakota's very few natural wooded and wildlife areas, which also contains rich farmland in the region north of the Baldhill Dam, there are compelling reasons for economics and common sense why the five-foot raise of Lake Ashtabula should never be approved. We will provide greater detail in written testimony before March 1st.

First, the Corps of Engineers' figures show that there is essentially no economic benefit to the West Fargo-Horace area as a result of the five-foot raise. The primary beneficiary would be Valley City. The five-foot raise, not including modifications for dam safety reasons, represents a total cost of over 26 percent of the overall Sheyenne flood-control project, but it contributes only 3.5 percent to the total net benefits of the entire project. We strongly suggest that this entire project be audited by the general accounting office, particularly with respect to the Baldhill Dam component.

Second, every time we turn around and read a news release on the subject, the local cost-sharing portion for the folks in Valley City has increased. There has been talk recently about the State paying half of the local costs for the entire project. This presumably would come out of the resource trust fund, but that would dry up the trust fund for years to come and would prevent assistance for other badly needed projects in the state.

The third, and we believe the most compelling, reason for denying funds and approval of the five-foot raise is that there are other viable alternatives which will do the job of providing flood control for Valley City, but will still preserve the Sheyenne River Valley. The alternatives need to provide about 30,000 acre-feet of additional storage in Lake Ashtabula to be equivalent to the five-foot raise storage capacity.

One alternative will be realized when the Garrison Diverson waters begin flowing through the Sheyenne River. By the Corps of Engineers' own figures and representations over the past seven years, the concept, which they call revised management of the Baldhill Dam, will yield an equivalent 14,000 acre-feet of flood-control storage. This means that Lake Ashtabula can be drawn down by that amount over the winter to accommodate heavy snow melt in the spring. Garrison Diversion will assure that the normal pool level can be replaced after each drawdown, and, therefore, Fargo's interest in an assured water supply is protected. The Corps of Engi-

neers doesn't like to talk about this, but it was one of the alternatives which they consistently presented in the planning stages of the entire project. Let's hold them to their word.

A second alternative is the construction of dry dams or smaller dams by local water boards working in concert with the State Water Commission. One such dam on the Baldhill Creek, which is the major tributary into Lake Ashtabula, would provide 15,000 to 20,000 by our engineer's estimate, thus yielding the same equivalent flood-control protection as a one-and-a-half to two-foot rise of Lake Ashtabula.

Thus, revised management of Baldhill Dam, backed up by Garrison Diversion, plus a dry dam on Baldhill Creek tributary, gives the equivalent flood control protection that a five-foot raise of Lake Ashtabula would give.

Fourth and finally, we feel that we have a commitment from our congressional delegation that the Baldhill Dam/Lake Ashtabula flood pool component is to be separated from the rest of the project, that a decision will not be made on this component at least until 1990, and that the Crops will be prohibited from using planning funds for the purpose of raising the reservoir pool until and unless the State of North Dakota agrees to sponsor that portion of the project; and that modification for dam safety purposes will address only the idenitified safety deficiencies. See the Congressional Record, May 15th, 1985, statement by Senator Burdick.

We fully support the necessary dam safety modifications. We request the support of all concerned in supporting, funding and proceeding with the alternatives which will equally serve Valley City's interests and will at the same time preserve North Dakota's Sheyenne River valley. We also urge the Congress to give the Soil Conservation Service the authority and appropriations to work with local water boards and the State Water Commission to develop the smaller dams which may not fit into the Corps of Engineer's grand designs, but which will do the job in a better way which meets the needs of all of our citizens.

And I would like to say something about rural water systems, and I suppose I have used my time, but my concern there is our system serves Griggs and Steele County mostly. We run over into Barnes and Cass and Traill a little bit, too. But when they were built—or since it's been built—we have had it for 10 years now—there have been changes of ownership in farms and new, young farmers. And some of these people who were ready to retire when it was built didn't sign up for it, then it cost about $300 to get on a system. Now, these young farmers, in order for them to get on, have to pay for all the installation, then they turn the pipe and everything over to the system, so it can cost them from three to seven thousand dollars to get on. And that isn't easy for a young, beginning farmer. And I think there should be some funds through FHA or the Bank of North Dakota, or a combination of grant money or low-interest money made available for these.

We have talked to FHA and it sounds like to get a mile of pipe—you know, to put in a mile of pipe, you get a mile of paperwork, and I just can't quite believe that's necessary. I think—if there are ten farms in one system that need help, why, they could be put in

a group and eliminate a lot of paperwork. I would appreciate your support and help in getting funds for that.

Senator BURDICK. Yes, and I hope the other matter will be resolved by men of good will.

Mr. UELAND. Well, I do, too. This rural water funding has been brought up at several state meetings, and we're not alone in that. Other systems have the same situation. Thank you very much for your time.

Senator BURDICK. Thank you.

Ms. HAUNSON. Sir, would you be able to submit your rural water statement? Would you be able to get a statement to us on that?

Mr. UELAND. Yes, I will send that in. We have more figures that we will send in before the 1st of March on the Baldhill Dam that will be more convincing in our favor, I hope.

[Mr. Ueland submitted the following:]

Dakota Water Users, Inc.
P.O. BOX 476
FINLEY, NORTH DAKOTA 58230
Phone
524-2393

Senator Quentin Burdick
United States Senate
Washington, D.C.

I am also representing Dakota Water Users, a rural water system located in Griggs and Steele Counties.

We have been in operation for approximately ten years and in that time several farms have new owners. I imagine the former owners were soon to retirement age or had other reasons for not wanting to get on a rural water system. Now these new owners, some of them beginning young farmers, would like to get on a rural water system. There are other groups of maybe four or five farms located between two systems that would like to be served that were left out for some reason before too.

The cash is quite prohibitive for these people if they are located one-half mile or a mile from an existing supply line.

I feel there should be some way of accomodating these people if some low interest or grant money was made available through Farmers Home Administration or Bank of North Dakota or something.

This has been brought up at several state meetings and our system isn't alone in this situation.

Dakota Water Users is also opposed to the raising of the Ball Hill Dam. If it is raised we would lose six users and would have to relocate our six-inch supply line at a cost of about $350,000.00.

Thank you for your time and consideration.

Respectfully Submitted

Kermit Ueland
RR 2 Box 48
Coopertown,ND 58425

Senator BURDICK. We'll now hear from the Souris River, the Honorable Chester Reiten, Glen Wunderlich, S.L. Olson.

Mr. REITEN. May I proceed?

Senator BURDICK. You may proceed as you wish.

STATEMENT OF HON. CHESTER REITEN, STATE SENATOR, STATE OF NORTH DAKOTA, REPRESENTING THE CITY OF MINOT

Mr. REITEN. Senator Burdick, my name is Chester Reiten. I'm appearing here today representing the City of Minot. I am a state senator and served as mayor of the City of Minot for fourteen years.

Senator, you and I have worked very hard for flood control of the Souris River, and we shared many flood-related experiences during the sixties and the seventies.

We also shared the extreme pleasure of seeing the International Souris River Flood Control project created in your Washington office late in 1985. At that time, Saskatchewan Premier Devine was guaranteed the Canadian equivalent of 41.1 million dollars for construction of two flood-control dams in his province. These dams will give Minot 100-year flood protection.

As a result of your efforts, the citizens of Minot overwhelmingly approved a flood-control sales tax to pay the local share of the project. Governor Sinner and the North Dakota State Water Commission pledged $905,000 towards the project, Governor Sinner promised to include another 1 million dollars in the upcoming state budget, and a Joint Water Resource Board for McHenry, Renville, Bottineau and Ward Counties was formed to act as the local sponsor for this project.

The City of Minot will promise to underwrite the local cost of the project by approval of an agreement with the Joint Water Resource Board. The Joint Board is currently negotiating a local cost-sharing agreement with the Federal Government. In short, all of the local arrangements have been made, including implementation and collection of the sales tax to pay the local share.

What we need by July 1st or sooner is a Federal appropriation of the 41.1 million dollars so that final financial arrangements can be made with Saskatchewan and so that construction can begin.

When Premier Devine promised to build flood-control dams, he based his decision on United States participation in approximately one half of the cost. His decision was based upon the relative value of United States and Canadian currency on July 1, 1986 and the established cost of the dams at that time. Because our federal government needed to go through with the authorization and appropriation process, the City of Minot agreed to reimburse Saskatchewan for any fluctuations in the rate of exchange between January 1, 1986, and July 1, 1987.

The exchange rate was 139.95 on January 1, 1986. As of last Tuesday, it was down to 133.175. This is a difference in United States dollars of almost 2.1 million dollars on the exchange rate on 41.1 million dollars United States dollars. So Minot has already obligated itself for an additional 2.1 million dollars, and there's no reason to believe that that amount will not go higher.

When we explained the need for the flood-control sales tax to Minot citizens, we also explained the need to cover any differences in the Canadian rate of exchange. We are very disappointed that contractual arrangements—agreements have not yet been made because when contracts are signed between the United States and Saskatchewan, the difference in the rate of exchange could be hedged. However, the City of Minot will stand by its commitment to cover the Federal Government until July 1, 1987.

But what happens after that date? If the United States dollar continues to weaken in relation to the Canadian dollar, Minot may find itself with more of an obligation to Saskatchewan than it can possibly afford. And unless the federal government is willing to accept the risk after July 1, we may jeopardize the project. So we need some action on appropriations by July 1.

We read section 213 of the authorization legislation as covering any difference in inflation and rate of exchange between the date of authorization and the date of construction. We've been told that there is some hesitation on the part of the Corps to read section 213 the way we read it. If our Federal Government does not tie inflation adjustments and differences in money value to the $41.1 million, we are in effect asking the Saskatchewan government to underwrite a larger share of the cost of the dams than we asked when the deal was originally made. I do not believe that this is right, and I suggest that the appropriation legislation that you introduce should clarify both the inflation and the exchange rate questions.

Negotiations between the state, province and federal government for operating of the flood-control dams are almost complete. The City of Minot stands willing, ready and eager to work with you and the Canadians in solving our mutual water-management problems. We have once-in-a-lifetime opportunity to rid ourselves of our flood-control problems. We cannot let the opportunity pass. We must have congressional action now.

I appreciate the opportunity to appear before you and thank you for everything that you've done for the City of Minot and the area. Based upon your past performance and your leadership in water project development, I'm certain that you can solve this problem. Thank you.

Senator BURDICK. Thank you.

STATEMENT OF GLEN WUNDERLICH, CHAIRMAN, SOURIS RIVER JOINT BOARD

Mr. WUNDERLICH. I'm Glen Wunderlich. I'm chairman of the Souris River Joint Board, which consists of Renville, Ward, McHenry and Bottineau Counties, which the Souris River does flow through.

We wish to thank you for your strong support in getting the Alameda and Rafferty Dam authorized. As Chester said, it gives us a hundred-year flood protection, although our operating plans have not all been resolved yet through flows and releases.

The status of our project so far at Velva is virtually complete. They concluded the diking, riprap and the channel change to bypass one loop in the river in Velva. They have trees and grass

left to plant, and that was too late to get done this fall. The Terracito Vallejo, a housing development west of Minot, is scheduled to be done this coming summer, and that's just basically diking to protect them to the 5,000 cfs level. Country Club Acres is the following year, with diking also or ditching. Sawyer is scheduled down another year down the road with dikes around the city there. And from Burlington to Towner, the rural flood protection is a couple years down the road, the preliminary work has been done, it won't take all that much there, as it is basically just the housing that needs elevation and diking in those places. There's a few houses that have to be purchased and removed because they're in the floodplain.

We urge your support, and all four counties have good support for the whole project. And the Souris River project is a once-in-a-lifetime chance to achieve flood protection to this magnitude.

Senator BURDICK. Next.

STATEMENT OF KAREN KREBSBACH, PRESIDENT, MINOT CHAMBER OF COMMERCE

Ms. KREBSBACH. I'm scheduled on the list as S. L. Olson, executive vice president, but I am not. I'm Karen Krebsbach, president of the Chamber of Commerce.

The Honorable Quentin Burdick. The Minot Chamber of Commerce appreciates being a part of this hearing on water needs.

Our desire is to express the importance of the proposed Rafferty Dam project, showing the impact and devastation caused from previous floods and flood threats.

The loss and human time consumption have had a tremendous drain on our city, residents and business community. Road repairs, property damage to homes, churches, schools and businesses have cost millions.

Although we have been free from floods and flood threat for the past 10 years, we must not become complacent and forget the five out of seven years that our valley had to be evacuated. Our residents have not forgotten, as was displayed by the 70 percent approval of the one-cent city sales tax supporting permanent flood protection via the Rafferty Dam project.

The progress of any community must be based on certain assurances, and the assurance of flood protection is a vital need not only for Minot, but the surrounding community it serves.

Respectfully submitted, Chamber of Commerce from Minot.

Senator BURDICK. Thank you. Orlin.

STATEMENT OF HON. ORLIN HANSEN, STATE LEGISLATOR, NORTH DAKOTA STATE LEGISLATURE

Mr. HANSON. Senator Burdick, at these water resource oversight hearings. Mr. Chairman and members of this committee. For the record my name is Orlin Hanson, a state legislator serving in the 50th North Dakota Legislative Assembly.

Today I'm representing an organization that is almost as old as the hills, to use an old saying, and known throughout the Souris Basin, both in the United States and Canada and, yes, throughout the world.

Citizens United to Save the Valley became a byword in the fifties, sixties, seventies and now in 1987 it's still the battle cry of many hundreds of thousands of people in the Souris Basin.

When it first came into existence in the early 1950s, really in the early 1930s, it was a much confined group. As a series of events evolved over the course of history, it became more encompassing. From an organization that was looking to the needs of a small portion of the basin (the North Dakota rural area to one that include Minot, the Saskatchewan portion and also the Manitoba portion), in essence, Mr. Chairman, the entire Souris River drainage system on both sides of the international boundary.

If you will permit me to digress back in history, I will cover these events to bring you and your committee up to date.

During the late forties and early fifties, a series of small floods occurred in the Souris Basin causing concern in Minot and surrounding areas. Damage was not that extensive, but recalling an earlier flood in 1904 with major catastrophic results in the valley, Minot requested help from our congressional delegation. Through action by them, a request was made of the Corps of Engineers to develop a flood plan for the Souris Basin. This had to be limited to the portion of the basin south of the international boundary, so it was a very limited study. The plan, as developed by them, was the infamous Burlington Dam and related works such as the DesLacs Diversion Tunnel. This basically was a plan that would benefit the Minot area to the detriment of upstream and downstream interests. Even though this was the only practical plan the Corps could present, because of their limitations as to area of the study, it was violently opposed to by those who lived in the rural areas because it would, in essence, destroy the major portion of the valley to save Minot from flooding.

I attended my first anti-Burlington Dam meeting in the fall of 1956 and then became actively involved in the early 1970s. The plan, as proposed by the Corps, was put on the back burner, so to speak, until 1969, when the first major flood of catastrophic proportions inundated the Souris Basin since 1904. This was the infamous flood that covered the entire Souris and DesLacs Valleys for up to six weeks as it entered the U.S. portion of the basin at Sherwood on April 12th and did not recede until late May or early June at the Westhope Gauging Station on the Manitoba border. Minot received most of the attention during that time period, and rightly so, this is where the greatest part of the population lived and where most of the damage occurred.

I can remember very vividly you, Mr. Chairman, and the late Senator Young, standing on the levees at Minot in the rain, promising the people the Burlington Dam. You both were sincere in your efforts to help relieve the suffering that was taking place at that time in Minot. There was one element, though, that didn't get much fanfare, and that was the fact the flood hit the upper portion of the basin in Saskatchewan and northern North Dakota long before it hit Minot, causing severe damage and hardships. The downstream interests were not taken into consideration as much as they should have been. These two facts brought together the organization known as Citizens United to Save the Valley into a cohesive group and, over the years, has effectively brought about a solu-

tion to the water problems in the entire Souris Basin in Canada and the United States.

You see, Mr. Chairman, as early as 1932, a farsighted group held a meeting at Estevan, Saskatchewan, consisting of representatives of the governor of North Dakota, the City of Minot, local legislators and a like group from Canada. They all agreed the only practical solution to these water problems was a dam on the upper reaches of the Souris River in Saskatchewan, above Estevan, known as the Rafferty Dam. The cost of this dam at that time would have been $250,000. A series of meetings were held in Minot and surrounding areas, then the drought and depression of the thirties hit, and you all know what happened. It was completely forgotten about until 1978 through a study known as the Canadian portion of the Souris Basin as the Souris River basin study; it came to light again. It gave credibility to the fight Citizens United to Save the Valleys was waging to save their land and homes from destruction by a greater manmade force than a mere flood.

Through a series of events over the next three years of great importance, the picture started to change; first of which was the offering for sale of Yards in the Park as a way to raise money to carry on the battle to save our lands. This little scheme publicized our plight all over the country and even internationally as portions of that valley were sold in 38 states, six Canadian provinces and eight foreign countries.

In 1981, a new governor took office, Allen I. Olson, who was able to look at it from an objective viewpoint, not having been involved earlier. Then in June of 1981, two brothers, Richard and Orlin Backes, who had helped lead the fight from the opposite sides of the issue, were able to bring the rural and city factions together to bring about a truce so that all efforts could be aimed in the same direction.

In April of 1982, the final part of the puzzle was put in place with the election of the Honorable Grant Devine as premier of Saskatchewan. His government would lead the fight for cooperation with Governor Olson and our congressional delegation, namely, you, Senator Burdick, to bring about a solution to the water problems in the entire Souris Basin, namely, water management.

After a series of meetings of the North Dakota, Saskatchewan Boundary Advisory Commission in 1983 and 1984, you, Senator Burdick, invited all the powers to be to a meeting in your office in Washington, D.C., in August 1985. Governor George Sinner, Premier Grant Devine, representatives of the Corps of Engineers, both on a district and regional and national scope, U.S. Fish and Wildlife, and others, including yourself, Senator Andrews and Congressman Byron Dorgan, were in attendance. After much discussion concerning a series of dams in the Saskatchewan portion of the basin, you asked all those concerned to go home and assess the benefits that could be had by working towards this solution to our problem. Then in October of 1985 we all assembled in your office again, at which time an agreement was reached as to the viability of this project. The Corps of Engineers stated they felt we would attain benefits of approximately 41.1 million U.S. funds in the United States portion of the basin if these series of dams, namely, the Rafferty and Alameda were built. You asked Premier Devine if we had

a deal, very simple, and after a short consultation with his staff, the premier said we did. A gentleman's agreement was reached.

Since that time a lot of meetings have taken place, both separately on both sides of the border and jointly, to work out a workable operating plan for the future. This all has not been completed, as a very sticky problem surfaced during discussions, namely, what to do about the evaporation of water as we store it to effectively manage it in the entire basin. This caused much discern, but has been tentatively resolved by what I call the brilliant work of our State Water Commission, and more especially, Dave Sprynchatyk, the assistant state engineer.

Now we are down to the last hurdle, Mr. Chairman, to solving this problem. The Canadians have asked for 41.1 million U.S. funds as of the time we reached an agreement, October 1985, to be converted to Canadian funds and placed in an interest-bearing escrow account, controiled by the U.S. Corps of Engineers, assuring them of total commitment to the project by the United States of America and also allowing them to use the interest money as a cushion against inflation and further decline in the U.S. dollar.

Senator Burdick, we are on the verge of fulfilling a dream, of making history, we have resolved all the problems in the basin, put aside all the bitterness and frustrations that evolved over these many years of fighting. Yes, we have called a truce, worked out a solution for the commond good of all people, both Canadians and Americans, and now there could be peace in the valleys. You hold the answer and the answer is needed very soon. Thank you.

Senator BURDICK. The answer is 41.1. Thank you very much. That was a very good survey on what the problem was. Thank you.

Mr. HANSON. Thank you very much, Senator.

Mrs. HAUNSON. The next witness is Audrey Boe Olsen from Fortuna, and she will be speaking on rural water assistance.

Ms. OLSEN. I have added a name since.

Senator BURDICK. Glad to see you again.

STATEMENT OF AUDREY BOE OLSEN, FINANCE SPECIALIST, MIDWEST ASSISTANCE PROGRAM, INC.

Ms. OLSEN. Yes, Senator.

Senator Burdick, members of the committee staff and guests. My name is Audrey Boe Olsen. I am a finance specialist for the Midwest Assistance Program. Midwest Assistance Program, or MAP, is a private, nonprofit, 501(c)(3) corporation founded in 1979, working in the nine midwestern states of Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota and Wyoming, assisting small, rural, low-income communities to solve water and wastewater problems.

I would like to take several minutes to comment briefly on some major concerns we see with a federal water supply loan progam as it relates to small, low-income, rural communities. These comments are the result of experience the staff of the Midwest Assistance Program has gained in working with more than 250 small communities with populations of 2,500 or less during the past seven and a half years.

Number 1. At present there is no federal assistance for domestic water supply/water systems outside of the Farmers Home Administration's Community Facilities Program. FmHA Community Facilities Program dollars are being cut back each year and current city loan portfolios are being prepared for sale to private lenders. These are being "graduated," just as a farm loans are being "graduated."

We urge the Congress either to reconsititute Farmers Home Administration grant/loan programs with additional dollars or establish another means to assist small, low-income communities.

Second. Small towns do have major infrastructure development and rehabilitation needs. Mr. Fahy commented on that this morning. However, small towns have an eroding property tax base and very little bonding capacity and are not able to finance major capital expenditures on their own. Current municipal bond rates range in the 7 to 9 percent range. There are a number of communities that can't even afford that. A strict loan program may not be an answer to low-income communities unless that interest rate is more attractive than current market rates. Any new program we suggest should look at an interest rate, for at least some communities, in the 2 to 5 percent range to be workable and affordable for small towns.

The additional comment, the 50,000 population trigger that was proposed in the section of Senate Bill 366 that talked about this, would really greatly limit participation in any of our nine midwestern states. If we must look at the SMSA areas, we don't really have too many of those in North Dakota, Montana, South Dakota, any of our States.

Number 3. Any loan program needs to be as red-tape free as possible. Small towns have no full-time paid staff or expertise to understand and follow the federal jargon or federal procedures.

Number 4. The Federal agency or Secretary, that administers any new Federal water supply loan program, we would urge would have some experience and knowledge in working with small, rural towns.

Number 5. The loan program should have a fast "fast track" for any loans under a hundred thousand dollars to minimize the paperwork and cost of administration for small towns. The comment before of a mile of pipe and a mile of paperwork, indeed, is rather accurate when we look at small towns that are trying to deal with Farmers Home Administration, Community Development Block grants or similar programs.

6. A new loan program should consider deleting federal Davis-Bacon wage requirements for small rural communities in order that the town can use local contractors and local labor without the lengthy paperwork process that Davis-Bacon triggers.

7. A number of States have been slow in identifying and inventorying infrastructure needs. A new program could require states to establish a priority system much like the EPA wastewater construction grants yearly priority process for water systems. They're (the States) pretty good at inventorying the needs on the wastewater side with the Clean Water Act. But on the water supply side, we haven't been as good at identifying needs. In our written testimony figures are given from Montana and Nebraska,

because there have been some limited state studies that was documented for need and infrastructure.

Number 8. Water conservation ties should be considered in any new loan program. MAP, our organization, has been a forerunner in the private foundation realm of working with private foundations to fund communities conducting water audit and leak detection surveys as a means of water and energy conservation. Over the past 3 years, MAP has assisted in cost share, as well as technical assistance in small communities in Iowa, Nebraska, Minnesota, and Montana in conducting water audits which realize substantial savings in reduced water production and energy costs.

That concludes my oral testimony, Senator. We will be submitting written testimony in greater detail for the committee record. And I thank you for this opportunity to speak on behalf of small, rural communities.

Senator BURDICK. Which would certainly apply to the sewer part of it. Senator Moynihan and I are going to introduce a bill to meet the other half of your problem, and when we get back, you will receive that. I think you will like what we do.

Ms. OLSEN. Sure. Thank you, Senator.

Senator BURDICK. The next witness is Mr. Faye Waxler, rural water systems. Hello, Faye. How are you?

Mr. THOMPSON. As you can see, Senator, I'm not Faye Waxler.

Senator BURDICK. I know.

Mr. THOMPSON. I'm neither as well informed or experienced. I wonder if I can ask a concession from the Senator and from the staff. There's another man here who will be speaking on the same subject that I'm speaking on and the previous witness just spoke on, and he has a presentation on the local level and he appears on your agenda as Mr. Harry Berg. And if he can be moved in here, it's asking for a consideration on the part of those who are intervening, but it will be probably what, five minutes, Harry?

Mr. BERG. Three minutes.

Mr. THOMPSON. Three minutes.

Senator BURDICK. That will be fine.

Mr. THOMPSON. Then you will have some continuity.

Mrs. HAUNSON. You will note at the bottom of the schedule it says that we provide for that.

Mr. THOMPSON. All right. Fine. I will explain my appearance here on behalf of Mr. Waxler. We got a call yesterday afternoon, that Faye had a kidney stone operation yesterday afternoon and they wouldn't let him out of the hospital to appear here today. So you're going to have to suffer my extemporaneous presentation, having listened to a formal presentation, and I hope you don't fall to sleep on this one.

Senator BURDICK. We've suffered with you for years. [Laughter.]

STATEMENT OF ALFRED THOMPSON, NORTH DAKOTA RURAL WATER SYSTEMS ASSOCIATION

Mr. THOMPSON. I appear on behalf of the North Dakota Rural Water Systems Association, which is an organization serving 16,690 meters in the State of North Dakota on which there are 10,606 miles of pipe, roughly 1.55 consumers per mile of underground

pipe. These are domestic water users. We serve 70,360 consumers, or approximately that number, which amounts to about a one in every ten consumers in the State of North Dakota—or one in ten of North Dakota citizens. So we now constitute a considerable number of North Dakota population. Our greatest density is 3.31 per mile. Our lowest density is .83 per mile, less than 1 person per mile of pipeline.

Construction costs range from $2,800 per connect to approximately—that's the lowest, and that was the result of early participation in the FHA program—to $7,000 per connect,which is a figure that was assessed to the people in the most recent addition to the systems in North Dakota.

Previous speakers talked about the problems with front-end money, and Mr. Berg will speak about that on the local level. It's a big problem. When we talk about $7,000 per connect to get water into a meter, that's an amount which even the federal government kind of raises an eyebrow at with its budget. But you can imagine what it means to the individual on the end of the line who has got to dig into his pocket and it's something that must be looked at if people are going to have good, pure, adequate—a good, pure, adequate supply of drinking water.

Now, water is not just a luxury. It's a human need. And when we talk about water in our program, we're talking about the water that flows out of the tap that people have got to rely upon, that they rely upon every day, and the people in Washington and New York and Oregon understand it just as much as the people in North Dakota. To be thirsty is something that everyone understands. When we talk about water source, we talk about adequacy, we talk about purity and we talk about dependability. Those three items must be fulfilled if we are to have a usable supply of water for the household.

Now, surface waters, as you know, Senator, in North Dakota are generally inadequate for the supply of water except for the Missouri River and the Sheyenne and the James and the Red. But they are now being taxed to their capacity for supply. Aquifers have supplied a certain number of water coffers in the state with a supply of water, but they are being depleted. And I should also add that there's some evidence of pollution in those aquifers now; migration of pollutants from miles and miles and miles, and we're suffering that down in the Red River Valley. So realistically what do we have to look at?

Those in the southwest area of North Dakota, where there's practically no water at all, that is either potable or an adequate supply, they are totally without water, they have no domestic water supply. And as any of you have traveled in the southwest part of North Dakota know, sometimes it's almost impossible to get a decent cup of coffee or a drink of just plain, potable water.

East of the Missouri River we're running out of supply. And what does that mean? That means we've got to rely upon what has been termed M and I, part of the Garrison Diversion program; municipal and industrial. And I'm glad they finally added one other letter onto that. It's now M, I and R. It's no longer municipal and industrial. It's also—they now include rural, because these are the people who really are disenfranchised from the God-given right,

and that's a decent drink of water. So the Missouri is the source of the water which must flow eastward.

Now, let's just look at what it costs our system here in Burleigh County. We don't pay a dime for water they draw out of the Missouri River. But we have a debt service charge of $30 per meter every month before any water is taken out of the tap. After the water is taken out of the tap, we pay $3 per thousand gallons of water use. Average use in North Dakota is 5,000 gallons. Simple arithmetic shows you then that the average bill is about $45 per month for domestic water.

Now, there is talk about adding a surcharge on water to be delivered out of the Missouri River diversion pipeline system as high as $25. Add that $25 to a debt service charge, which is average, of $30 and you've got a figure of $55 per household before a glass of water can be taken out of the tap. Now, that becomes unbearable. The average consumer simply is not going to pay $55 plus his usage charge, which is about $30 per month, that would be $85 per month. They simply can't afford it. We heard testimony about a young farmer who can't afford the hookup charge. Well, add onto that hookup charge of $7,000 an $85-per-month bill for water and they simply can't afford it.

So the difficult part of this whole thing is that where we have the lowest density, they're the persons that are under the M and I program, as originally contemplated, they're the ones who are going to have to pay the biggest bill, whether it's up in some little town in the north valley or whether it's a farmer out on the end of the line. They're the ones that are going to be stuck with it. It's not equitable and it's not financially feasible.

So we suggest that there be no charge for water taken off the pipeline, or that if there is a charge for water taken off pipeline, that it be on the same postage stamp rate that you and I spoke of in the electric industry years ago. So it doesn't make any difference where you're located, you pay the same price for the raw water out of that—for the water out of that pipeline, whether you're sitting on a highly developed block in the City of Fargo or whether you're sitting up near Devils Lake or further removed from the supply system. We would much prefer, of course, that there be no charge. It is only equitable.

Now, later on we will file with you a written statement and some data to support the testimony which I've given today. I apologize on behalf of the association for Mr. Waxler's not being able to be here, and if I can answer any questions, I would be happy to.

Senator BURDICK. That was a very good argument.

Mr. THOMPSON. Thank you.

Senator BURDICK. Mr. Berg.

STATEMENT OF HARRY BERG, BURLEIGH WATER USERS COOPERATIVE

Mr. BERG. Senator Burdick and members of the committee. I represent the board of directors of the Burleigh Water Users Cooperative, and their concern is of the Missouri River bank south of the cooperative's wellsite which is located about 10 miles north of Bismarck.

The erosion on the bank in this area will eventually affect the water supply of the cooperative. Currently, Burleigh Water Users is responsible for supplying 680 members' homes, which translates into approximately 1,500 to 1,800 individuals.

We would like to request that some work be done on the riverbank in this area so that the water supply for our members is not put in jeopardy from the erosion of the bank.

On the testimony I sent you before, I attached a map here, and I can pass this over here to you, if you care to take a look at it. The blue area represents the wellsite, the red area represents the area where the erosion is taking place. The erosion there is about four to five hundred feet along the bank. Now, our wells are about 60 feet deep, and with this erosion it could have a great effect on it.

In addition to the members that I mentioned here that we are currently serving, when we started this association, we had an area called the gray area or two-mile limitation around the City of Bismarck, and at that particular time they would not let us go into this area to serve these people. To this day these people don't have any water. And now we have the authority to go in there and serve them. There's approximately 120 homes in this area. This water in this particular area is very bad. They have a lot of sodium and rust and what have you, and we have constant calls and, hopefully, someday we can get some funding to go in there and take care of these people.

We have another area that's down east of the city here, Apple Valley, they have approximately 100 homes, but they have the same problem that practically everyone else has, and that is the funding. There's a trailer court out here that has about 110, something like that, trailers located. It's out in the country. And they're interested in obtaining water, and, again, they have the same problem there, funding.

Much of my testimony would be repetitious to Judge Thompson's here. I know you're spending a lot of time here, and I will close it at this particular time and I want to thank you, Senator, for the original help that you give us when we got financing on this project.

Senator BURDICK. Gentlemen, a week ago we passed the Clean Water Act. I've asked the staff whether this addresses any of the problems that you have presented here. Are you aware of any benefits you will get from the Clean Water Act we've already passed? If not, we will do a little study on it when we get back.

Mr. THOMPSON. You understand that our big problem right now that Harry spoke of is we have got people out here who want water now if we could just get the front-end money to get the water in to them. It's another question of five, seven thousand dollars per connect, they can't afford it. And they're just as thirsty as we people who are already getting water.

Senator BURDICK. I'm going to check the law very carefully and see if we can't get some immediate help, if possible. I'm not sure.

Mr. BERG. Thank you for your time.

Senator BURDICK. Thank you. Is there a William Mills present?

Mr. MILLS. At least one.

Senator BURDICK. There's certainly not two.

STATEMENT OF WILLIAM R. MILLS

Mr. MILLS. Senator Burdick, members of the staff. William Mills, Bismarck, North Dakota.

The problems created by the mainstem dams on the Missouri River can be classified into erosion, inundation and inequity. My concern is that we do not overlook the third, inequity.

Whether the government should be involved in certain functions can be honestly debated. For example, navigation, irrigation or generation.

But, surprisingly, we find the Corps of Engineers and the United States Justice Department arguing the virtue of inequity, advocating theft by the government.

Their methods differ. The Corps has been admitting for twenty years that it is flooding land on which it has no flowage easement. Annually, it reports the problem is under study.

Originally, when the Oahe Dam and Reservoir was under consideration, the Corps of Engineers advised Congress that they needed the river land north to the Bismarck Memorial Bridge, but in 1954 agreed to move the taking line ten miles downstream.

On September 6, 1961, the Crops wrote me and said none of my land would be required for the Oahe Reservoir project. Only after this assurance from our government did we pour in the time and money to preserve and protect our land. But the Corps wanted to make hydropower in the wintertime, which would require the release of water under ice conditions. The downstream states would not tolerate the dangerous conditions which result with the channel capacity diminished by ice. So the Corps adopted a program that the only place on the Missouri they would make large water releases in the wintertime is in North Dakota.

The winter releases at Garrison are much greater than they are on the summer releases. The Corps deliberately floods each winter to a 13-foot stage and exceeds that stage repeatedly.

The Corps also confesses that the changes in the capacity of the channel at Bismarck are due to the Corps' operation of the river. The bottom of the channel is filling up at Bismarck with the dirt washed off the banks upstream. When the bottom comes up, so does the top of the river at any given flow.

The Corps has admitted that we still have erosion, but no longer have accretion. Bank owners lose high, firm land, but no longer gain high, firm land. The Missouri is becoming a wide, shallow river with many sand bars, but it is doing this at the expense of the riparian owners.

The Corps came up with the solution to this erosion, bank stabilization. On my land, however, where they put any rock at all, it was hundreds of feet from the riverbank. When we tried to protect our own land, our own bank land, as we had for twenty years, the Corps stopped us. Through their continual flooding the Corps has made it adjacent wetland, and Congress gave the Corps the power to stop us.

In theory, there is a procedure that provides payment for government taking. If one's property is confiscated by the government for public purposes, one can sue in the Court of Claims under the Doctrine of Inverse Condemnation.

After a couple of decades of run-around, we commenced an action in the Court of Claims way back in 1981. But the Justice Department is even worse than the Corps. For example, at the insistence of Senator Burdick and Congressman Dorgan, the Corps agreed in 1984 to finalize their report on what land was being flooded and what the Corps proposed to do about it. An excellent report was prepared by the Corps, bearing the date of June 1985. The United States Justice Department ordered the Corps to delay the report and keep it in the deliberative process so that it could not be distributed. The Corps, finding itself between a rock and a hard place, destroyed all copies. However, two copies found their way out. I have one; Dave Sprynczynatyk has the other.

The Justice Department erects multitudes of barriers to an expeditious determination of a claim. Those who are comforted by the thought that a citizen can find redress for their grievances in the Court of Claims are not familiar with the United States Justice Department's capacity to fight a war of attrition.

And it's certainly not my purpose to try my case to this committee. However, if I, who have forty years of legal expertise at my disposal and have hundreds of acres involved and miles of waterfront in danger, find myself helpless, how can Congress rely on the system to do justice to friends and neighbors who are without these resources?

It would be inappropriate to take the committee's time going over all the government imposed inequities. What has happened to me and my land is not, itself, worthy of an investigation, but it is significant, because I have assembled over the years full and complete documentation of the events that would affect this representative sample of the problem. With the committee's consent, I will file with them a written and documented chronology supplementing my testimony.

To close, I would sum up with a message that appeared in the London Times the year I began to practice law, quote, The greatest tyranny has the smallest beginnings. From precedents overlooked, from remonstrances despised, from grievances treated with ridicule, from powerless men oppressed with impunity and overbearing men tolerated with complacence, springs the tyrannical usage which generations of wise and good men may thereafter perceive and lament and resist in vain.

Thank you.

Senator BURDICK. Thank you. The Corps is here and I'm just going to ask a question, Bill.

Mr. MILLS. Sure.

Senator BURDICK. I'll ask them a question.

Ms. HAUNSON. The next witness is George Toman, from Mandan. He is a board member from the Lower Heart River Resources District.

Senator BURDICK. Welcome to the committee, Mr. Toman.

STATEMENT OF GEORGE J. TOMAN, MEMBER OF THE BOARD, LOWER HEART WATER RESOURCES DISTRICT

Mr. TOMAN. Good morning, Senator. Thank you.

We are truly grateful to you and your staff for the many efforts that you put forth which resulted in congressional approval of appropriations and authorization for a flood-control project which we have supervised by the Corps of Engineers, and that was completed in 1952. You know that since that time, Senator, we have a whole generation that doesn't know what a flood threat is to their home because of the protective works in the past. The Water Management District has fought some very effective battles with that river and our levee system.

In 1977, because of these effective works and the closure of the Garrison Dam, the plains—floodplains that were prone to flooding were then released from such hazard and they were occupied by commercial and industrial businesses, residences. The City of Mandan put a sewage wastewater treatment system into that plain. And on today's replacement values, around six million dollars.

The Corps of Engineers, as a result of this finding on the part of the board or the recommendation on the part of the board that we reevalue, did their reevaluation and have come up with a plan that we concur with in almost all of the details. We do have a problem on one end of it, and that is that we would like to have an extension of the levee for an additional 2,000 feet. We have discussed this with the Corps, and they're amenable to discussions and review.

However, we feel that it is a part of our program. We have outlined our concerns in the written statement, and I think we've entered that for your review It also contains a map of the area in which this is being considered, which is in the lower reaches.

And the main thing we would like to leave with you and your committee is that we do have a problem with the facilities within the area, we do need protection. And we do find that if this is to be borne by the water district, it's going to be a hardship on it, because the bulk—the majority of our land is farmland, industry. And I can only say that we hope you and your committee and staff look on this favorably.

We will follow this with detailed written statements and data to substantiate our feeling and our claims. And I do want to thank you very much for being able to appear before you and present this little segment. The written statement says it better than I do, and I hope you will have an opportunity to read it. Thank you.

Senator BURDICK. We look forward to reviewing the materials.

Mr. TOMAN. Thank you, sir.

Ms. HAUNSON. Next is Glen McCrory, who is chairman of the Emmons County Water District.

Senator BURDICK. Welcome to the committee, Mr. McCrory.

STATEMENT OF GLEN McCRORY, CHAIRMAN, EMMONS COUNTY RESOURCE DISTRICT

Mr. MCCRORY. Thank you. Senator Burdick, my name is Glen McCrory, chairman of the Emmons County Resource District.

I wanted to make a short statement about the Corps of Engineers' operation on Lake Oahe. I don't know how that got in there, but apparently there was miscommunication there.

We would like to present a written statement later. I would just like to make a short statement now.

We would like to address the access problems that we foresee will develop if plans to fence Corps lands proceed. Not only will adjacent landowners be restricted for livestock water, but public access for fishing will also be curtailed. One rancher told me that if fencing cuts him off from the water, he will lock gates on his private land that will stop access by fishermen.

For 20 years we have gotten along without fencing on this Corps land with only minor problems. At this time of budget problems, it makes no sense to spend federal dollars on something that is not needed. In other words, if it ain't broke, why fix it.

If it's being done to promote wildlife, we say that farmers and ranchers are the ones that make or break wildlife in this state, not a small area fenced by a federal agency. At a time when wildlife interests and landowners are starting to cooperate more, we feel that fencing this land will only help put up another barrier between the groups. Thank you for the opportunity to speak on this issue. As I said, we will submit a written statement on this before the March 1st deadline. Thank you.

Senator BURDICK. Right to the point. Now for the finale, we'll have the people that have been mentioned time and time again, the Corps of Engineers. I'm sure you've been present during all of the testimony, and you can pick up any phase of it you see fit.

STATEMENT OF BRIG. GEN. CHARLES E. DOMINY, MISSOURI RIVER DIVISION ENGINEER, CORPS OF ENGINEERS

General DOMINY. Mr. Chairman, thank you. We appreciate this time to be with the people of North Dakota today to hear these issues. I'm General Charles E. Dominy, the Missouri River Division Engineer. And with me I have the two district engineers that work in this state, Colonel Steve West, from the Omaha District, and Colonel Joe Briggs, from the St. Paul District.

I would like to begin by saying how pleased we are to be able to work water issues with the people of North Dakota. And I want to echo the statement that Vern Fahy made earlier about the professionalism of the people that work water issues. We have that same feeling about the professional staff, the folks that work water issues within the State of North Dakota.

Senator BURDICK. And I think the people ought to know that your father and I worked together in water issues years ago.

General DOMINY. Yes, sir.

Senator BURDICK. Kind of a family reunion.

General DOMINY. Indeed, it is. I will present testimony on two issues affecting the Missouri River Basin and the State of North Dakota, water supply and bank erosion along the Missouri River. I will be followed by Colonel Briggs and Colonel West, who will provide an overview of projects in their districts pertinent to North Dakota.

In accordance with the policy of Congress declared in the Water Supply Act of 1958, as amended, it is the primary responsibility of the states and local interests to develop water supply for domestic, municipal, industrial and other purposes. Consistent with national

policy, development of single-purpose water supply projects is a non-federal responsibility. Under that policy, the Corps of Engineers generally does not conduct single-purpose water supply studies using Federal funds or recommend federal construction of projects considered to be for single-purpose water supply. Multipurpose reservoirs provide opportunities for water supply storage in concert with other functions.

Consistent with this policy, storage for municipal and industrial water supply may be recommended for inclusion in a Corps multipurpose reservoir provided the sponsor pays 100 percent of costs allocated to water supply storage. The Water Resources Development Act of 1986, Public Law 99-662, amended the 1958 Water Supply Act. These amendments modified the payment terms of the original act.

Development of distribution systems and treatment facilities to allow full utilization of water from these multipurpose reservoirs can and should be done by state and local entities. Since municipal and industrial water supply is a fully vendible service, all costs of providing the service can be recovered from the ultimate users.

The Missouri River Basin has a history of extremes in water availability. This 529,000-square-mile drainage area, which covers all or parts of ten states, experiences both local shortages and local surpluses in precipitation almost every year.

The severe drought of the fifties and the recent drought in Montana are examples of extreme shortages in precipitation. Last fall, floods in the Milk River Basin in Montana and the Osage River Basin in Missouri provided recent examples of the excesses that can occur over this vast basin.

The six mainsteam Missouri River reservoirs provide opportunities to minimize the impacts of such extreme variations in precipitation and to assure that economic, environmental and social values are served. These reservoirs are authorized specifically to serve flood control, irrigation, navigation and hydroelectric power generation. They also serve water supply and water quality, fish and wildlife and recreation purposes, even during the most severe drought events.

The potential for system storage for water supply exceeds all foreseeable demands. We are currently conducting studies to review our policies on use of storage for water supply. Since any policy can affect several States, our studies are being coordinated with the Missouri Basin States Association. We are considering the applicability of Section 6 of the 1944 Flood Control Act, which permits the use of surplus water in storage, and the Water Supply Act of 1958. Our studies are to be completed and an appropriate recommendation furnished to the Assistant Secretary of the Army for Civil Works by June 1987.

Stream bank erosion is a continuing problem. We have heard an enormous amount of concern and testimony here this morning about it. Prior to development in the Missouri River Basin, bank erosion was common throughout the floodplain. However, over the long term, there was a balance between the destruction of valley lands by erosion and the building of new valley lands by sediment deposited during floods. This process resulted in a continuing mi-

gration of the river channel and significant losses of farmlands in some areas and gains elsewhere.

Due to the balance between erosion and deposition processes, there was no long-term net loss of high bank lands, as one landowner's loss became another landowner's gain. Bank erosion continues today. However, rates of erosion are less than in the preproject era. Because of project operation there is now a net loss of high bank lands, although lands once unsuitable for farming are now being farmed.

In 1912, Congress authorized a six-foot-deep navigation channel between Kansas City and St. Louis. In 1927, extension of the six-foot channel was authorized between Kansas City, Missouri, and Sioux City, Iowa. The Rivers and Harbors Act of 1945 authorized a 300-foot-wide, nine-foot-deep channel between Sioux City and St. Louis.

From 1912 and 1980, the Missouri River between Sioux City and St. Louis was shortened, narrowed and deepened to provide for navigation and stream bank protection and to reclaim farmland in the four states of Iowa, Nebraska, Kansas and Missouri. Over 300,000 acres of water surface area was converted to agricultural and other uses.

Construction and the subsequent operations of the mainstem reservoirs has reduced the flood and sediment processes that were essential to that balance between erosion and accretion. The Missouri River from the upper end of Fort Peck Lake all the way to St. Louis has, indeed, been evolving into a new river system. Bank erosion is continuing downstream from the dams resulting in a permanent net loss of high bank lands. In some areas, lands are gradually being converted to river channel and sand bar areas.

Stream bank stabilization measures have been constructed between Garrison Dam and Lake Oahe under two separate authorities. The Garrison-to-Oahe project was authorized by the 1963 Flood Control Act and amended by the Flood Control Act of 1968. Over 9.7 million dollars was expended to construct measures in that project area. Under provision of Section 32 of the Water Resources Development Act of 1974, as amended, about 6 million dollars was expended to construct stream bank erosion-control demonstration projects between Garrison Dam and Lake Oahe. The works constructed under these authorities have been turned over to local interests for maintenance.

We are currently investigating the erosion and sediment deposition problems along the Missouri River. This analysis is being accomplished as part of our Missouri River, South Dakota, North Dakota, Montana and Nebraska study. The report on this study is scheduled for completion this fiscal year. The study includes the identification of problem areas, potential remedial actions, benefits and the extent of federal interests.

Over the years we have found that measures necessary to control erosion generally cost far more than the economic value of the area being protected. Our current studies indicate that structural measures may be economically feasible in areas where development is concentrated or public facilities are endangered. If public works facilities are endangered, construction measures under authority of Section 14 of the 1946 Flood Control Act may be considered. Protec-

tion of private lands and facilities is considered to be a non-Federal responsibility and stream bank erosion control measures could be constructed at no Federal cost.

Section 603 of Public Law 99-662 authorizes a program to plan, design and construct stream bank erosion-control projects. This program includes a project along the upper Missouri River. Specific locations include the Missouri River upstream of the Fort Randall Dam and downstream of Oahe, upstream of Garrison Dam and downstream of the Fort Peck Dam, and upstream of the Fort Peck Dam to the confluence of the Missouri and Musselshell Rivers. This project is not funded currently. Since this project is not consistent with current priorities, we cannot justify the use of limited Federal funds to implement this project at this time.

Mr. Chairman, that concludes my formal statement, and I think it would be appropriate if we hear from our two district engineers about specific projects in the State, then we can go on. Let's turn first to the Omaha District, Colonel Steve West.

STATEMENT OF COL. STEVEN G. WEST, OMAHA DISTRICT ENGINEER, CORPS OF ENGINEERS

Colonel WEST. Mr. Chairman, members of the staff, I am Colonel Steve West, the district engineer of the Omaha District, and I would like to present an overview of the ongoing activities of the district in North Dakota.

We have several ongoing activities relating to Garrison Dam and Lake Sakakawea. These activities include operation and maintenance of our existing land and facilities and some new initiatives.

Garrison Dam and Lake Sakakawea have provided flood control since 1953 and hydroelectric power since 1956. This project is a major unit in the Missouri River system of multipurpose dams and is making major contributions to the basin's economy in the form of flood control, hydroelectric power, recreation, navigation improvement, storage of water for irrigation and municipal consumption, fish and wildlife recreation and improvement of downstream water quality. The flood damages prevented have totaled over 702 million dollars. The powerhouse contains five turbine generators with a combined capacity of 430,000 kilowatts. The electrical energy produced annually averages 2.8 billion kilowatt-hours. During fiscal year 1986, revenues from the sale of hydropower were 18.84 million dollars, also, over 2.3 million recreation days were experienced.

When the dam was being built, the Corps created the town of Riverdale to house the construction workers building Garrison Dam. Later it became home for many of those operating and maintaining the dam, but it was still a government town. In 1986, the ownership of Riverdale townsite was transferred from the Corps of Engineers to the citizens of the community. This transfer was authorized by Congress. The district worked with the people of Riverdale to make this a smooth transition.

In addition to general activities required to operate Garrison Dam, the following maintenance work is scheduled for fiscal year 1987: Completion of both the generator stator windings and installation of the power plant control system, continuation of the voltage regulator replacement, construction of a project maintenance

garage and equipment building, installation of new roofs on the power plant and intake structure and numerous other activities. The amount of 8.747 million dollars has been programmed to accomplish this work in this fiscal year.

Currently the district and the Bureau of Reclamation are involved in a cooperative effort to solve the problems of surface and groundwater encroachment surrounding Lake Audubon. We have provided part of the cost of North Dakota's ongoing groundwater study since 1984. In 1985, the district developed detailed mapping to assist in identifying problem areas. Upon completion of the groundwater study, the district will work with the county, state and the Bureau of Reclamation to resolve the remaining problems. In addition, a special effort was made in late fiscal year 1986 to expedite approval of $84,000 in federal funding to help the county raise the road at Seidler Slough. This funding has been approved and will be provided to the county when the work is complete.

There is a great deal of interest in increased recreational development on land surrounding Lake Sakakawea. Interest also exists in private residential development on lands adjacent to the federal land around the lake.

A proposal from the Three Affiliated Tribes for the development of the Arrowhead Resort Recreation area has been reviewed and approved. The resort is a cooperative effort of the Three Affiliated Tribes, the Corps, the State and the private sector. We are ready to continue evaluation of this opportunity. Such proposals are consistent with the department's budgetary priorities which reflect the concept that recreation development should be the responsibility of state, local and private interests.

The State-proposed Little Missouri Breaks State Park will incorporate the existing Little Missouri Bay Recreation Area and the Little Missouri Primitive State Park with the adjoining, Federal lands resulting in a 20-mile linear state park system. Once completed, the park will be a major new resource and lake access.

The Senate report on the 1987 Appropriations Act directed the Corps to complete the necessary technical studies and engineering plans for the Little Missouri Bay Recreation Area. The Corps, the state and all other interested parties are formulating a development plan that will provide the basis for a cost-sharing agreement and supplement to the Garrison Dam-Lake Sakakawea master plan. The development plan will be completed this spring. Under current priorities, however, no funds are being budgeted for this kind of development.

The Water Resources Development Act of 1986 authorized the Four Bears land transfer. A total of 153 acres of land will be transferred to the Bureau of Indian Affairs to be held in trust for the benefit and use of the Three Affiliated Tribes.

Other lands of equal value will be transferred to the United States for maintenance and operation of Garrison Dam and Lake Sakakawea. The Tribes will retain the right to use this land for grazing purposes when the lands are not subject to flooding.

A appraisal and survey to assure the exchange of equal value land need to be completed, then we intend to complete the transfer action.

The Lewis and Clark Breakwater was severely damaged by high waves in September of 1986. We are reviewing the State and Federal responsibilities and the various funding options for repair of this damage.

Other ongoing activities in North Dakota include operation and maintenance of Lake Oahe, Bowman-Haley Dam and Pipestem Dam.

About one-third of the Oahe Dam and Lake Oahe multiple-purpose project is in North Dakota where the headwaters extend almost to Bismarck. Comparable in size to Garrison Dam and Lake Sakakawea, the project's principal interests to North Dakota are the opportunities afforded by its recreation and power facilities. Recreation and wildlife areas have been developed at numerous places along the North Dakota portion of the project. The project's current power plant houses seven turbine generator units, with a combined capacity of 595,000 kilowatts.

Other purposes for the project include flood control, navigation and irrigation. Revenues from the lease of project lands have been returned to adjacent counties in both the States of North Dakota and South Dakota.

Current operation and maintenance activities include completion of generator stator windings, wildlife mitigation and vegetation, boundary rectification, erosion protection and numerous other activities. An implementation plan that identifies specific mitigation work is currently being prepared. The amount of 7.555 million dollars is programmed for fiscal year 1987 operation and maintenance activities for the Oahe project.

Bowman-Haley Dam and Lake provides flood control on the North Fork of the Grand River six miles upstream from Haley. This multipurpose project also provides fish and wildlife enhancement, general recreation, municipal and industrial water supply and other benefits. We have a contract for future water supply for the towns of Bowman, Scranton, Gascoyne and Reeder. The amount of $279,000 is programmed for operation and maintenance activities for this project in fiscal year 1987.

Pipestem Dam and Lake provides flood control, fish and wildlife enhancement, recreation, water supply and other benefits on Pipestem Creek, a tributary of the James River. Protection is provided to the City of Jamestown and adjacent rural areas. Recreation facilities at the project were cost-shared with Stutsman County. The amount of $492,000 is programmed for fiscal year 1987 operation and maintenance activities. This includes an amount of $150,000 for acquisition of land because of flooding on several upstream properties.

Work is also progressing on several small flood-control projects in North Dakota. In accordance with new cost-sharing requirements in the Water Resources Development Act of 1986 (Public Law 99-662), Federal participation in feasibility studies and in project construction is subject to Washington level certification of Federal interest and appropriate local cost-sharing.

At Belfield, we are completing a reconnaissance investigation of a flood problem on the Heart River. Our studies indicate that channel improvements would be feasible. We are ready to initiate feasibility studies, subject to cost-sharing requirements.

We are evaluating the flood problem at Max, North Dakota. Potential flood flows are less than those permitted for consideration under current policies.

The existing levee project on the Heart River at Mandan can be overtopped by ice jam floods. Studies have identified a feasible plan. Subject to local cost-sharing requirements, we are ready to pursue the project. The project would consist of raising existing levees to provide greater protection from ice-affected flood events, and we are considering the extension of the levee in our ongoing work.

Congress authorized a flood-control plan for Mott in 1958. A reconnaissance level study indicates that construction of the left bank levee would be economically feasible. Subject to local cost-sharing requirements, we are ready, also, to initiate feasibility studies this fiscal year.

A request was recently received from the City of Tioga to initiate a reconnaissance study of its flood problems. We will initiate these studies as soon as funds become available. We anticipate that to be October of 1987.

The Missouri River, South Dakota, Nebraska, North Dakota and Montana study is scheduled to be completed this fiscal year.

General Dominy discussed two elements of this study, water supply and bank stabilization. In addition, this study addresses flood problems and the opportunities for additional hydropower at Garrison Dam.

Our studies of the flood problem in the vicinity of Bismarck indicate that potential flood-protection measures are not economically feasible. We concluded that the best course of action is to reduce releases from Garrison Dam during critical periods when winter ice-in or inflows from tributaries below Garrison could cause flooding at Bismarck. We also concluded that local interests should implement a strong floodplain management program. This could include raising selected roads and requiring new development to be constructed to avoid the threat of flooding.

Additional hydropower units at Garrison Dam would be economically feasible. There has been little support for these units because of potential impacts on the downstream river reach and its fish and wildlife resources. We would not recommend further study at this time because of the lack of broad public and utility support.

This concludes my remarks. I can only reemphasize that the Omaha District has a strong, active, involved and really caring involvement, and we want to maintain that active participation and to continue to support the interests and the programs that can be managed under the authority we have. I will welcome remarks after the completion of Colonel Briggs' comments.

Senator BURDICK. Colonel.

STATEMENT OF COL. JOSEPH BRIGGS, DISTRICT ENGINEER, ST. PAUL DISTRICT, CORPS OF ENGINEERS

Colonel BRIGGS. Senator Burdick, as the district engineer of the St. Paul District, I would also like to say that I am happy to be able to be here today to make a presentation before you.

I will discuss the St. Paul District's ongoing activities in North Dakota. We are working on several projects that have features under construction this year. The Lake Darling-Souris River project includes the Rafferty and Alameda flood storage reservoirs in Saskatchewan and features in the United States, including community levees and rural floodproofing downstream of Lake Darling Dam, fish and wildlife mitigation and Manitoba compensation. We are making significant progress with the two million dollars appropriated this year.

The flood-control project features on the Souris River at Velva will be completed this summer. Project features include levees, channel improvements, interior drainage facilities and five closure structures.

Construction plans and specifications are underway for six levee developments between Burlington and Minot with a scheduled construction start of one levee in April 1987. Construction for the Sawyer levee is scheduled for April 1988. The downstream rural floodproofing construction is scheduled for August 1988. The fish and wildlife mitigation includes modification of seven refuge dams and other miscellaneous items. The need to compensate Manitoba for flow changes resulting from the flood-control operating plan is currently under study.

A draft local cooperation agreement for the overall Souris River Basin project is scheduled for completion this March. The local cooperation agreement will stupulate that if an agreement cannot be reached to construct the flood-storage reservoir in Saskatchewan, we will proceed with the four-foot raise of the Lake Darling pool.

The president's budget for next year includes 14.8 million dollars to provide the contribution toward construction of the Saskatchewan flood-storage reservoirs, to complete plans and specifications and to initiate construction of several project features in the United States.

The Sheyenne River project includes three principal flood-control features: The West Fargo-Riverside feature, the Horarce-to-West Fargo diversion, and the five-foot raise at Baldhill Dam. Funds of $695,000 are being used this year to complete the plans of the overall project and initiate the detailed design on the West Fargo levees and diversion channel. Funds of $439,000 requested for next year will be used to complete the detailed design and plans and specifications for the West Fargo levee and diversion channel. Construction of this feature could begin in 1989. The total project cost for these three features is 40.4 million dollars, with local costs estimated at 20.5 million dollars.

In addition, the Maple River reservoir was authorized by the Water Resources Development Act of 1986. Funds to initiate the study could be proposed as early as October 1988.

The Baldhill Dam safety project is a separate consideration in the Sheyenne River Basin. Our objective will be to ensure that the repaired dam will be able to function during an unprecedented storm event without increasing downstream hazards, such as loss of life and economic damage. The plan is to expand the existing spillway capacity to safely pass very large flood flows. A request for funds has been made to the Office of the Chief of Engieners to complete final designs for the dam safety work and initiate construc-

tion. The construction could take five years, at an estimated total cost of as much as 36 million dollars.

Three communities have small flood damage reduction projects under construction as part of the Continuing Authorities Program.

The Enderlin project consists of a system of levees, channel improvements, interior drainage facilities, road raise and replacement of a railroad bridge.

This project will be completed this summer at a total cost of 4.5 million dollars. Local cost is estimated at $552,000.

The flood-control project for the city of Devils Lake will protect the city from rising lake levels. The project consists of an embankment across the head of Creel Bay, two smaller tieback embankments, a pumping station and related interior drainage facilities. The project is substantially completed and is functional. Only a few minor modifications remain. The estimated project cost is 2.6 million dollars, including $160,000 in local costs.

The Argusville project consists of a ring levee and interior drainage facilities. The project is scheduled for completion this August at an estimated cost of $957,000. Local costs are estimated at $106,000. The project at Neche is in the engineering and design stage. This project consists of upgrading an existing levee system to provide a greater permanent level of flood protection. We are awaiting report approval and funding for plans and specifications. The estimated total construction cost is about 1.1 million dollars, with a local share of about $280,000.

The Devils Lake Basin is being studied under our feasibility program. Final channel alignment alternatives for regulating the levels in Devils Lake were discussed at public coordination meetings at several locations in the basin last week. The final report is scheduled for late this year.

The English Coulee study, a small flood-control study in Grand Forks, is scheduled for completion this fall. Preliminary analysis of alternatives indicates that flood protection upstream of the railroad bridge along the coulee is economically justified.

As funds are made available, we will be investigating the project at Grand Forks. We also have received requests for funds for studies at Harwood, Rivertree, Lisbon, Foxholm, Carpio and Red River at Fargo. These six studies will be accomplished under the Continuing Authorities Program and will be undertaken as funds become available and our workload permits.

Our ongoing work includes the Section 22 program and the floodplain management program, which provides technical assistance to the states.

Our floodplain management studies have included emergency preparedness plans, effective floodway analysis, data inventory and collection of hydrologic data. Funds on the order of $35,000 are provided each year for this assistance. A substantial amount of work has been completed or is underway to reduce flood damages in the Souris and Red River Basins in North Dakota. We have a good working relationship with the State of North Dakota. While the future appears to hold little potential for additional large projects, we will continue our efforts to serve the people of North Dakota.

This completes my remarks, and I am prepared to respond to questions, if that is appropriate, at this time. Thank you, sir.

Senator BURDICK. Well, gentlemen, you have given a very comprehensive view of everything that's going on in North Dakota. I'm sure many citizens are pleased to hear how busy you have been.

There are a few areas where there's some question, as you know. The first question is: Do you have authority to do bank stabilization on the Missouri River?

General DOMINY. Mr. Chairman, the authorization was clearly spelled out in Public Law 99-662, with specific reaches in the Missouri and other rivers of this country. The problem we're facing is one of priorities. As you well know, the Administration has elected not to budget those particular types of studies at this time, ranking them below other issues that they feel have a higher benefit-cost ratio and potentially higher use and better use of Federal funds. But in terms of authority, it's spelled out very clearly in the Public Law.

Senator BURDICK. I know, because I was part of the framers of that authority. In other words, you're telling us it's a money question?

General DOMINY. Mr. Chairman, that's correct.

Senator BURDICK. So it's up to us to get some money. Have you got that on low priority or middle priority? Where have you got that in your schedule of work?

General DOMINY. At the current time, it's not in our schedule of work and not prepared to be budgeted. The philosophic question of bank stabilization is that it is basically a State and local responsibility.

Senator BURDICK. The bill we passed last year says it's not a local and State responsibility. Reading from section 603, it says the secretary is authorized to carry out a program to plan, design, construct streambank erosion control projects. This is in subsection F, when in the opinion of the secretary says work is economically justified and environmentally acceptable. And we're listed in subsection F. So the only question is whether it's economically justified or environmentally acceptable.

General DOMINY. Mr. Chairman, that is correct; that is the language of section 603, and further on in that same bill each of those things will be subject to section 903, and the Assistant Secretary of the Army for Civil Works has some prioritization and decisionmaking to do, and that is currently where we are.

Senator BURDICK. Apart from the authority we have in the law now, apart from that, when you consider what North Dakota has done, flooding in the Mississippi-Missouri River area is practically eliminated, and we're one of the six mainstem dams, we have the reservoirs, we have held the water back, we have done a lot for the country, we have given them over 600,000 acres of land, and don't you think we're entitled to stopping this erosion?

General DOMINY. Mr. Chairman, I think the State of North Dakota has very eloquently summarized the Pick-Sloan plan, its original goals and its original thrusts, and the current state of the Pick-Sloan plan, those features that they strongly support and that they recommend be completed. I think that record is solid, and I think the arguments are quite persuasive.

Senator BURDICK. If the mainstem system costs are going to be reallocated, will any consideration be given to including or adding

the cost of bank erosion control to systems and costs? Has there ever been an estimate what that extra cost would be if you included bank stream erosion?

General DOMINY. Mr. Chairman, the level of detail that that particular question implies may be one I would like to provide for the record.

Senator BURDICK. That would be fine.

[The information follows:]

CONSIDERATION OF BANK EROSION CONTROL IN COST REALLOCATION

Section 302(a)(3) of the Department of Energy Organization Act of 1977 limits our ability to implement cost reallocation without Congressional approval. A partial reallocation of costs is required by the Garrison Diversion Unit Reformulation Act of 1986, but it will not be of sufficient scope to consider the cost of bank erosion control. Even if more comprehensive cost reallocation studies were to be undertaken, justification for including the cost of bank erosion control would be required. An acceptable estimate of the cost of bank erosion control measures is not available at this time.

Senator BURDICK. Doesn't the operation of the mainstem reservoirs, just the operation in and of itself, doesn't that add to the erosion problem?

General DOMINY. Mr. Chairman, we heard testimony earlier today about the nature of the very clear water that is released from Garrison and the fact that it is not sediment loaded and that it does contribute to erosion. I think that the facts are there, and I think that the operation of the mainstem system does, in fact, contribute to erosion. The big question is pre-project erosion capability of that river versus current project, and I think that we within the Corps of Engineers, through our studies, have gone on record that there is a net loss of high bank land in the current mainstem configuration.

Colonel WEST. Mr. Chairman, the Omaha District is currently in the process of conducting an aggradation, degradation bank erosion study along the Missouri as requested by the Missouri Basin States Association. This assessment has not been completed at this time. Therefore, we truly have not reached a conclusion on this matter, and the issues brought before you today are part of that consideration. We are looking to reach draft conclusions sometime this summer.

Senator BURDICK. Well, I'm glad to hear that. Look at it real carefully, will you?

Colonel WEST. The conclusions are anticipated to be published in the next several months—the final document.

Senator BURDICK. That's the best news I've heard yet. We haven't been foreclosed yet at this moment; right?

Colonel WEST. Our final assessment is in preparation for publication probably in March.

Senator BURDICK. Another way of saying, you still haven't finally decided what we're going to do on bank stabilization; is that right?

Colonel WEST. Until it's published, no, sir.

Senator BURDICK. That's right. I understand that you've completed a study of groundwater and some flooding problems in the Oahe-Bismarck area. What were the results of this study? I think you have touched upon it.

General DOMINY. Mr. Chairman, I will have the district engineer address that one since the Omaha District was directly involved.

Colonel WEST. The only feasible solution to the flood potential in the Bismarck area, Fox Island area, that we have been able to determine is judicious flood plain management and curtailment of flows from Garrison Dam during periods of high water in the Bismarck area.

Senator BURDICK. In other words, until the operators of the dam hold back a little bit now for this period of time?

Colonel WEST. Trying to tune the releases to the conditions that exist and, also, to look at the floodplain management aspects of development in floodplain areas.

Senator BURDICK. Well, does nonstructural measures mean moving people out? Nonstructural measures, what is your definition of nonstructural?

Colonel WEST. Floodplain management is establishing those policies of zoning and control to try to limit development in highly flood-susceptible areas.

General DOMINY. Mr. Chairman, as you well know, other nonstructural measures can be a taking, can be the purchase of lands that are being damaged, and/or purchasing a flood easement so that when the floods are there, the people have already had some acknowledgment of that impact. But the analysis prepared by the Omaha District was that those were not economically feasible and that the most prudent course of action would be to manage the flows during ice-in, to try to ice-in at the lowest level and to be responsive during storms when inflows below Garrison were causing a flood threat in this region, that we would hold back releases from Garrison to dovetail with that.

Senator BURDICK. Have local interests been made aware of the program for river and ice assistance under section 1101 of the current bill that we just passed? Has that information reached the local localities?

General DOMINY. I'll have my chief of planning for the Missouri River Division, Mr. John Velehradsky, who has been involved in this, share some thoughts on that.

Mr. VELEHRADSKY. Our Office of Chief of Engineers is currently reviewing all the sections of the Public Law 99-662, and a policy regarding that section has not been developed at this time. So we have not notified local interests what could be done under that provision of the act.

Senator BURDICK. I see. It says the secretary is further authorized to provide technical assistance to units of local government, implement local plans to control or break up such ice. As part of such authority the secretary shall acquire necessary ice-control or ice-breaking equipment, which would be loaned to the units of local government, together with operating assistance where appropriate. In other words, that area hasn't been explored.

Mr. VELEHRADSKY. That's correct, sir.

Senator BURDICK. I understand the Corps has $210,000 available this year for floodplain management service technical assistance. How many communities requested such assistance from the Corps, and has the Corps made any effort to let the communities of the State know that such assistance is available and how much is pro-

grammed for activity in '88? If you don't have the answers to those three, you can supply them. Do you have any answers?

General DOMINY. I think, Mr. Chairman, on that one we would best summarize that in detail and put it in for the record.

Senator BURDICK. That will be fine.

[The information follows:]

FLOOD PLAIN MANAGEMENT SERVICES

The Omaha District has $150,000 available for the current year for its overall Flood Plain Management Services program. The program level in Fiscal Year 1988 will depend on actual appropriations and resulting work allowances. The approximate level of funding available annually for North Dakota technical assistance under this program is about $20,000 for areas within Omaha District and about $35,000 within St. Paul District. Many communities in North Dakota have requested technical assistance. Due to limited funding, the Corps has not been able to meet all of North Dakota's needs. Last year, a flood plain analysis was completed for a reach of the Missouri River located upstream of Lake Sakakawea and downstream of the Montana state line. This year, the Omaha District is studying the Missouri River flood plain between the upper end of Lake Oahe and Garrison Dam.

Senator BURDICK. What, if any, resources are programmed to continue the examination of constructing a Garrison Dam powerhouse extension and the reregulating dam? I think that was touched upon by the Colonel a few minutes ago. If this work is being continued, why does this project have a higher priority within the Corps than examining bank stabilization or flood-control problems since even the State has expressed serious reservation to the project and a need for additional hydropower project at the present time is questionable? In other words, why do we deal with the power plant and not with bank stabilization?

Colonel WEST. I believe, Senator, that we do not have any ongoing plans for any studies or efforts on a reregulating dam or currently any expansion of the powerhouse, as I discussed in my formal testimony.

General DOMINY. Mr. Chairman, we will have one clarifying comment on the Oahe powerhouse. We have done an economic analysis there to see whether the upgrade of existing turbines with new blades, and those kinds of things, would increase the efficiency of that. The key issue here in response to your question is that that has the potential of a fairly strong benefit-cost ratio and a vendible service, which tracks with the policy at the present time.

Senator BURDICK. The Omaha progress report reviews the history of the Corps examination of the flood-control problems on the Heart River in Mandan. The report indcates that the final draft project report on this project was scheduled for completion last October, that $200,000 is programmed for final engineering plans this year, that construction will not be initiated until fiscal 1989. Is that correct?

Colonel WEST. That is correct.

Senator BURDICK. If the definite project report on this project is finished, the final design being prepared, why isn't this project in the budget for fiscal 1988?

General DOMINY. I would like to introduce Mr. Thompson, the chief of planning for the Omaha District. I think he can give you the most precise answer to that.

Mr. THOMPSON. This project is authorized under the Continuing Authorities Program, and does not need line-item authorization funding by Congress. This is done under the Continuing Authorities Program and not under line items.

Senator BURDICK. That's probably right, but why not '88 instead '89?

Mr. THOMPSON. We do have a schedule. We're looking for Washington approval in April of '87, the plans and specs in April of '88, construction beginning in April of '89 and completion.

Senator BURDICK. 1988 is a planning period, then.

Mr. THOMPSON. Plans and specifications for construction.

General DOMINY. Mr. Chairman, I want to reenforce the fact of how much we appreciate the opportunity to be with you here today to discuss there issues.

Senator BURDICK. Thank you very much. You have a lot of work to do in North Dakota. We would just like to know how we can get some bank stabilization out of this thing some way, somehow, so these farmers don't lose any more land. You understand that they're very concerned?

General DOMINY. Yes, sir. That came through loud and clear.

Senator BURDICK. If that's all, the meeting will be adjourned. Just a minute. We have about ten, fifteen minutes, if someone else has questions or anything, a statement to make.

Mrs. GRANT. I got one. The next time the Corps does any work above my place, do a good job. Don't do a half—it's washing away. The dam up there is washing away.

Senator BURDICK. Well, I think that concludes this. Adjourned.

[Whereupon at 1:00 p.m. the hearing was adjourned.]

[Statements and other material submitted for the record follow:]

TESTIMONY OF

STATE ENGINEER, VERN FAHY, AND STAFF

TO

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

HONORABLE SENATOR QUENTIN N. BURDICK, CHAIRMAN

BISMARCK, NORTH DAKOTA

FEBRUARY 11, 1987

Mr. Chairman and Representatives of the Senate Environment and Public Works Committee:

We would like to join Governor Sinner in extending you a sincere welcome to the City of Bismarck, the great State of North Dakota, and an important though largely undeveloped reach of the upper Missouri River system.

We intend to discuss with you today a wide range of issues involving the Missouri River and several other areas of the state. If necessary, we will orally summarize some portions of our written statement to comply with the committee's time schedule.

If you could see the great Missouri, only a few blocks from here, you would see a tree-lined channel alive with shifting, surging ice flows that are moved by a quantity of water which exeeds 16-million acre-feet annually.

If you could see the impoundment behind Garrison Dam, Lake Sakakawea, about 70 river miles north of here, you would see a marvel of construction that contains about 23-million acre-feet of water.

Within the southern city limits of Bismarck are the upper reaches of the water impounded by Oahe Dam constructed near Pierre, South Dakota. It is only slightly smaller than the reservoir impounded by Garrison Dam.

This, then, is a resource which is of tremendous benefit to downstream states and has the potential for immense benefits to our state and region. Much of our discussion will involve this area of the upper Missouri River system.

MISSOURI RIVER BANK STABILIZATION

Description of Erosion Problem

The Corps of Engineers has constructed six large multi-purpose dams in tandem along the upper Missouri River to provide flood control, power production, irrigation, water supply, augmentation of river discharges for navigation and water quality, recreation, and fish and wildlife benefits.

With closure of the Pick-Sloan dams, virtually all incoming sediment is entrapped within the reservoirs and the releases consist of sediment free clean water. Downstream from the dams the river recovers its bed material from the sandy riverbed after a few miles, however, the wash load (silts and clays) remains drastically reduced. The river regains washload from bank erosion and from downstream tributaries.

The water released from Garrison Dam is in a silt free condition. This means that the water has a silt carrying capacity approximately 2 2/10 percent of the weight of the water itself. It is attempting to obtain this capacity and in doing so, this removes silt from the riverbed and riverbanks eventually carrying it into the Oahe Reservoir.

In 1964, in its statement on the need for the Missouri River bank protection works, the Senate Committee on Public Works in Senate Report No. 648 88th Congress, 1st Session, said:

> "Prior to construction of the Garrison Dam the waters of the Missouri River were heavily laden with silt and sediment to the point that, while bank erosion did occur, it was very minimal, and usually for each loss of land there was a corresponding accretion or gain in the area. With the construction of Garrison Dam, the sediment is deposited in the reservoir, and the releases from the reservoir are virtually silt free and they

degrade the channel and erode the banks downstream from the dam at a considerable rate. It is estimated that about 640 acres of good river-bottom land in North Dakota is lost annually along the Missouri River below Garrison Dam through bank erosion."

In the natural river prior to the construction of the dams, there was a balance over the years between erosion of the high banks and the building of new valley lands by sediment deposited during floods, resulting in a continual migration of the river channel within the valley. Due to the balance between the erosion and deposition processes, there was no long-term net loss of high valley lands.

Aerial photographic surveys taken over the years have been analyzed by the Corps to obtain estimates of valley lands lost below Garrison Dam. The results of these analyses indicate the pre-dam erosion rate from Garrison Dam to Bismarck was 222 acres per year compared to 80 acres per year under post-dam conditions.

The bank erosion below the dams does not occur uniformly along the erodible banklines at the average erosion rate indicated above. The destruction of land in any one year is usually concentrated in a few selected locations. These locations of active erosion shift from place to place from year to year. The exact locations where the erosion is likely to occur cannot be predicted in advance; however, over the years every stretch of erodible bankline is potentially subject to active erosion.

The Corps of Engineers' Final Report to Congress in 1981 has expressed the problem as follows: "Bank erosion in this reach results in a permanent net loss of high valley lands. High valley lands are being converted to river channel

and sand bar areas, while the width between high banks continue to increase. This process, unless halted, would eventually transform the present river into a wide area of sand bars and channels, occupying an increasing proportion of the valley between bluffs."

This streambank erosion results in the permanent, irreplaceable loss of prime agricultural lands, degrades water quality, and threatens residences and public facilities. The continuing threat of erosion is a particular problem for those activities where proximity to the riverbank is either desirable or necessary; such as, irrigation intakes, summer homes, power plant intakes, and recreation facilities. It has been necessary for private companies to provide erosion protection to protect transmission towers.

The preservation of forest land is of special concern since much of the remaining uncleared woodlands in the Missouri River bottoms are concentrated near the riverbanks.

The Corps holds that changes to the Missouri River channel resulting from Pick-Sloan Program features cannot be corrected as part of the authorized program and that additional congressional authorization is required to address these channel problems. It is suggested that individual projects must be authorized and federal funds appropriated (non-federal cost-share funds may be required).

History

The Flood Control Act passed by Congress in 1944 authorized the construction of the Pick-Sloan Dams on the Missouri River as well as many other

features such as downstream navigation and the Garrison and Oahe Diversion Irrigation Projects in the Dakotas. By the late 1950's, the dams were completed and the initial filling of the reservoirs was completed by 1965.

North Dakota has been cooperative in the development of the Missouri River project as envisioned in the Flood Control Act of 1944 and the O'Mahoney-Milliken amendment. Approximately 566,000 acres of valuable agricultural lands have been removed from North Dakotas tax rolls to meet the requirements. Choice bottom lands, small towns and Indian Reservations were lost forever. Leitch and Anderson in their Agricultural Report No. 190 at North Dakota State University, determined the personal income loss to North Dakotans from the inundated land for 1984 to be $44.8 million. This would have generated a gross business volume of $131.4 million. In addition, there are very significant losses to coal, oil and forestry resources because of inundation.

The Dakotas were promised the Oahe and Garrison Diversion Water Projects as payment for these losses. But because of environmentalists' objections, lack of support, and the unwillingness of Congress to keep their promise, these projects have not been constructed.

Federal agencies made plans and proposals whereby a dam would be constructed at the so-called Mandan site on the Missouri River as a part of the overall Missouri River Basin project. It was objected to by State representation and this objection was honored. The fact that this proposed dam was once in the Missouri Basin plan may have resulted in an oversight in not protecting the banks in that portion of the Missouri River extending from Garrison Dam to the Oahe Reservoir.

Existing Erosion Control Structures

At the request and urging of Senior Senator Milton R. Young, the Senate Committee on Public Works, in the first session of the 88th Congress, approved and recommended, and Congress by the Flood Control Act approved December 30, 1963 (P.L. 88-253), authorized.

> "bank protection works at or below the Garrison Reservoir as in the discretion of the Chief of Engineers and the Secretary of the Army may be found necessary at an estimated cost of $3,000,000."

Pursuant to such authority, the chief of Engineers with the concurrence of the Secretary of the Army, approved the construction of bank protection and stabilization works. Local interests were advised accordingly. Initially, they were given to understand that they would be required to provide only the necessary right-of-way and hold the United States free from damages due to the construction works but would not be required to maintain the works at local expense. Later information, however, was to the effect that non-federal interests would be required to maintain the improvements at their own expense at an estimated annual cost of 1 1/2 percent of the construction cost.

The so-called Corps of Engineers' a, b and c assurances require local cooperation in bank protection and stabilization projects along the Missouri River. These assurances, require that the sponsoring agency shall:

> "(a) provide without cost to the United States all lands, easements, and rights-of-way necessary for the construction and operation of the project;
>
> "(b) hold and save the United States free from damages due to the construction works;
>
> "(c) maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army."

After several years of lobbying, appropriations were secured from Congress and the Corps did install some bank protective works beginning in 1965. This effort continued sporadically through 1978. No further appropriations have been secured. The first projects were built to downstream standards and are able to perform with little or no maintenance. The last projects, built under Section 32 Demonstration Act of 1975, were an effort to determine how economically protection could be achieved. Many of these have failed or will soon fail and considerable "maintenance" is necessary immediately or they will be lost.

All these projects, although federally financed, were built under agreement with the state or local government providing all maintenance. The local entities knew this was wrong, especially compared to the downstream projects where all maintenance was federally provided, but they signed the required a, b, c agreements because the need was so critical and with the belief that this obvious injustice could be corrected. However, to date, this status still prevails.

Compliance with these requirements in connection with the construction of a local project may be considered reasonable. When it comes to a river project having basin-wide significance, such as the Missouri River Basin, with a number of main stem dams maintained and operated by the Federal Government for flood control and navigation as major project purposes, the situation is altered. It then becomes an unreasonable and inequitable requirement. The need for channel improvement, bank protection and river shaping in the Missouri River becomes necessary because of the federal operation of the reservoirs, such as the Garrison Reservoir.

Navigation

With the construction of the Pick-Sloan dams completed, the downstream benefits to navigation and flood control were immediate. The Missouri River Navigation Project provided complete bank protection with full federal maintenance, and the flood control provided allowed the full development of the flood plain for agriculture, industry and municipal purposes from Sioux City, Iowa to St. Louis, Missouri. The productivity of these bottom lands and the tax receipts were greatly enhanced. The direct and indirect benefits of navigation were also very significant. All these benefits continue to accrue to the river valley downstream from Sioux City.

Regarding that portion of the Missouri River developed for bank stabilization and open river navigation, the report of the Missouri Basin Survey Commission, on Page 113 of Chapter 1, Channel Stabilization and Navigation Project states: "Obviously the Corps now considers erosion control and related benefits from the project as more important justification than navigation aspects. Of the total estimated annual benefits attributable to channel stabilization, about 25 percent is credited to navigation and about 75 percent to bank erosion control and land enhancement." The benefit cost ratio obtained from Page 122 of the Commission's report further indicates the annual benefits from channel stabilization to be the major beneficiary rather than navigation. Thus, it would appear that if channel stabilization were performed in the Oahe to Garrison reach, it could stand on its own merits and navigation would only lower its benefit cost ratio.

Damage to Existing Structures

There currently are 26 sites where Corps erosion control structures are in need of repair. The estimated cost to repair these structures is $263,475. The annual maintenance cost for the existing Corps structures is estimated at $100,000.

Existing Erosion Problem Areas

The Missouri River Streambank Erosion Study completed by the Corps of Engineers in July 1985, identifies 41 erosion problem areas on the Missouri River between Lake Oahe and Garrison Dam. Additional problem areas have been identified by the State Water Commission. The Corps estimated the cost to provide erosion protection to the 41 sites of $26,798,500. Among others, 10 to 20 homes, Sibley Island Park, Ft. Lincoln State Park, and the Mandan Cemetery are threatened by the erosion.

Lowering Water Surface Elevation

Another result of the Pick-Sloan operation is the lowering of water surface elevations in the open river reaches of the Missouri. Water surface elevations (stages) have shifted downward upstream of Bismarck since the construction of Garrison Dam. Lowering of the water surface has adversely impacted fish, wildlife, and recreation resources of the floodplain, primarily by draining the adjacent wetlands, shrinking the area of adjacent cut-off lakes, lowering the water table, and causing occasional operational problems for marinas and power plant cooling intakes during periods of low flow.

Fluctuations

Drastic changes have been made in the characteristic of the water being released through the Garrison Dam.

1. It is discharged at a very high velocity which facilitates degradation.

2. Water is released in accordance with the demand for hydropower which causes broad daily fluctuation which increases bank erosion.

3. It no longer has the opportunity to deposit its sediment load and rebuild previously eroded areas but carries it into Lake Oahe thereby reducing the functionary capacity of that reservoir.

In the early 1960s and the late 1950s, the annual operating plan for the Corps of Engineers indicated that the capability of generating electricity from Garrison, would be limited to releases of about 16,000 cubic feet per second. They have now increased the releases during the winter months to 36,000 cfs at times.

The discharges vary considerably to meet power production requirements. An "average" day will include releases of 0 to 10,000 cfs for a short period during the early morning hours and a maximum of 35,000 cfs to 38,000 cfs during the peak power production period from forenoon to late evening. The sharp fluctuation in the releases, particularly under an ice cover during the winter months, causes an increase in velocities. Likewise, during the ice-free period, fluctuations cause the banks to be saturated and dried many times during a month.

Before construction of the Pick-Sloan dam, there was one period of high flow with corresponding high velocities and one period of bank saturation. Now

in contrast to the fluctuation cycle imposed by Mother Nature upon the river once every 12 months, it is occurring many times each month.

Oahe Reservoir Delta Formation

Another result of the Pick-Sloan operation has also become apparent in recent years. This is the creation and continual enlargement of a delta in the headwaters of the Oahe Reservoir caused by silt deposition where the moving silt laden waters of the flowing river meet the still waters of the reservoir. This delta is gradually raising the water table under the adjacent land and also can trigger ice jams and flooding both during freeze-up in the fall and break-up in the spring. Decreasing the erosion rates between the Oahe Reservoir and Garrison Dam would slow the delta formation. At the existing delta formation rate, corrective alternatives may include the purchase of highly developed land, structural methods, or the lowering of the operating level of the Oahe Reservoir; all very expensive.

Irrigation and Development

Without the periodic flooding and deposition of fertile silt, present day agriculture in the Missouri Valley requires irrigation and heavy fertilization for sustained yields. Irrigation development, however, has been seriously restricted because of the lack of good pump sites. Either the river bank adjacent to the farmers' land is subject to active bank erosion or the river channel may be located across half a mile of low sand bars. Either condition discourages or prevents irrigation. Only a few farmers are fortunate enough to have pump sites located on naturally hard banks or where a bank revetment project has been installed. Continuing bank erosion has also demoralized urban home building along the river in all except the most protected areas. If

Missouri River water was readily available and if the land was protected from erosion loss, almost all bottom lands would be irrigated because it has been demonstrated that the soils and water are very compatible and it has also been demonstrated that irrigation enhances and stabilizes farm income.

Resolutions

The Midwest Electric Consumers Association which is an organization of all the Rural Electric Cooperatives and the Municipals who receive electric power from the Pick-Sloan dams have consistently passed resolutions at their annual meetings requesting the Corps of Engineers to complete the construction of the Pick-Sloan project by rectifying these problems at project expense. Basin Electric Power Cooperative at Bismarck and the North Dakota Association of Rural Electric Cooperatives have also consistently adopted similar resolutions. They understand this will cause a small increase in their power costs, but realize it is not proper that they receive power at the expense of the land along the river. North Dakota and other state legislatures have also consistently passed resolutions requesting Congress and the Corps of Engineers to complete the Pick-Sloan Project by correcting the bank erosion problem.

Corps Responsibility

In approximately 1961, Colonel H. G. Woodbury Jr., Omaha District Engineer with the Corps of Engineers, indicated that among other possibilities in connection with protection of the remaining open river bottoms between Bismarck and Riverdale is that of buying those which may be damaged by erosion.

The upper Missouri River mainstem reservoir system is operated as a unit. The channel of the Missouri from Garrison Dam to Lake Oahe is no longer a river,

but merely a conduit for federal use to operate its reservoirs in the manner which they desire.

It is North Dakota's position that correction of Missouri River channel problems created or exacerbated by features of the federal Pick-Sloan Missouri Basin Program should be the responsibility of the program. It is understood that not all effects of the massive Pick-Sloan Program could be predicted and planned for, but that does not relieve the Federal Government of its responsibilities to correct and mitigate damages caused by features of the program.

YELLOWSTONE RIVER EROSION

The U. S. Congress instructed the Corps of Engineers to implement multiple erosion control demonstration projects on the Lower Yellowstone River, under Section 32 of the "Streambank Erosion Control Evaluation and Demonstration Act of 1974." The projects provided much needed erosion protection to the Yellowstone River, however, certain local erosion protection projects resulted in the subsequent migration of an erosion problem to an unprotected area. This is the case in the Cheney Creek Area project.

The Cheney Creek Area project is located in western McKenzie County, North Dakota. Since the project was completed in 1980, additional erosion problems developed both upstream and downstream from the project.

The Cheney Creek Area project was damaged and in need of vital repairs within five years after its construction. The Corps of Engineers Cheney Creek project design memoranda states "The responsibility for operation and maintenance of the project will remain under the Corps of Engineers for a period of up to five years after completion." However, after repeated requests by the State Water Commission to the Corps to provide the necessary repairs, the Corps has declined to accept responsibility.

The current problem is endangering the historic Morrell Farmstead. The Morrell Farmstead is eligible for listing on the National Register of Historic Places.

CORPS OF ENGINEERS POSITION ON CHANNEL MAINTENANCE AND WATER MARKETING

Statements are frequently made that the Corps of Engineers maintains an adversarial relationship with the upper basin states, but a cozy and comfortable partnership with the states below Sioux City. It is easy to understand why this impression is so strong in the upper basin by a brief review of Corps of Engineers positions on channel maintenance and water marketing proposals.

The major interest and major mission of the Corps of Engineers in the Missouri Basin is navigation now that the flood control reservoirs are in place in the upper basin. Congress has decided that the Corps of Engineers will perform channel maintenance at the expense of the Federal Government in the lower basin where navigation occurs, but that state and local governments must pay for channel maintenance in the upper reaches where navigation flows are stored and released. That might be termed "Congressional discrimination" supported by Corps of Engineers practices because Congress has established general policies for navigation on the Missouri River. We will have to work with Congress to bring about the changes necessary to allow the Corps of Engineers to provide fair and equitable treatment in maintenance practices throughout the system.

It is ironic that this area which has sacrificed so much to provide downstream benefits for navigation, flood control and electric generation should also be required to pay the maintenance and upkeep costs associated with the delivery system that supplies the downstream benefits!

Other speakers will address maintenance costs and practices in more detail.

The subject which I would like to address in some detail is the proposal by the Corps of Engineers to begin charging upstream state and local government for domestic water removed from a Pick-Sloan mainstem reservoir. As proposed, the charge will be assessed whether or not the water used is from natural flows and whether or not the domestic supply project benefits from the presence of a mainstem dam.

During the mid-1970s, when a multi-agency task force undertook a study to determine what federal agency should contract for sale of industrial water for coal conversion and other energy uses, the Corps of Engineers legal staff determined that water marketing was not within the authorities of the Corps of Engineers, so this marketing function was assigned to the Bureau of Reclamation. The Bureau of Reclamation has entered into several industrial water contracts since that time.

In recent times, the Corps of Engineers has reversed its position on water marketing and is now proposing that there is no water in the upper basin reservoirs available for use by the state and local government without a water sales contract with the Corps of Engineers.

The Corps of Engineers justifies its claim to the waters in the upper basin system on a questionable interpretation of language, in a report provided to the 78th Congress by the Board of Rivers and Harbors. The citations in the report clearly do not support the Corps of Engineers efforts to broaden the interpretation of "surplus waters" to the extent that all water in the upper system is surplus and therefore subject to marketing by the Corps of Engineers.

The new position of the Corps of Engineers concerning water marketing based on its interpretation of the language in Congressional Acts, makes reference to use for navigation of waters impounded behind Fort Peck Dam. Please keep in mind the 1944 Flood Control Act was passed several years after Fort Peck was constructed and this 1944 Act completely revised the "law of the river" as it existed prior to 1944.

The Corps of Engineers claim to marketing control of all water, based on its interpretation of pre-1944 Congressional language dealing with navigation, completely ignores the O'Mahoney-Milliken Amendment to the Flood Control Act of 1944. This amendment specifically assures the upstream states of their rights to water regardless of the needs for navigation. The amendment states, in part:

> "The use for navigation of waters arising in states lying wholly or partly west of the 98th meridian shall be only such as does not conflict with any beneficial consumptive use, present or future, in states lying wholly or partly west of the 98th meridian of such waters for domestic, stockwater, irrigation, mining or industrial purposes." (Emphasis added)

It seems to us who manage water resources in the upper basin states, that Congress has spoken on the subject and that it is time for the Corps of Engineers to assist, rather than impede, the development which Congress considered in the language of the O'Mahoney-Milliken Amendment to the Flood Control Act of 1944.

Our dissatisfaction with certain positions of the Omaha District of the Corps of Engineers, should not be construed as a criticism of the personnel involved. These professionals are attempting to do their job as they believe it should be done and their actions are always at the highest level of professionalism. We sincerely hope that policy changes will be made by Congress

and by the Chief of Engineers in Washington, D. C., that will result in equitable management of the great Missouri River for the benefit of all users as foreseen in the Flood Control Act of 1944.

SOURIS RIVER FLOOD CONTROL PROJECT

The need for flood control on the Souris River has been apparent for many years. Major floods have caused substantial damage to Minot and Velva. Many farms experience flooding problems nearly every year.

The Souris River Flood Control Project, as currently designed, is a multi-feature approach to the flooding problems along the Souris River. The project includes several features:

1) Rafferty and Alameda Dams in Saskatchewan;
2) Levees and channel improvements at Burlington, Minot and Velva;
3) Floodproofing of several rural residences;
4) Improvements to Lake Darling Dam and to other refuge structures; and
5) Miscellaneous roads and railroad relocations.

A major obstacle to past plans was the objections of local residents to Burlington Dam and the lack of a suitable alternative that would significantly reduce major flooding along the Souris River. The Rafferty and Alameda Dams in Saskatchewan apparently are the missing link to the long awaited solution for Souris River Flood Control.

Under new cost-sharing guidelines, the non-federal share of the project must be at least 25 percent. Certain features of the project were authorized in the 1970s and, as a result, traditional cost-sharing is permitted. The Souris River Joint Water Resource Board is requesting state assistance in paying the $12.8 million. The alternative to funding this request is to leave the remaining non-federal cost-share up to the locals.

The Souris River Joint Water Resource Board requested further state participation in the non-federal cost requirements of the Souris River Flood Control Project, in a letter dated August 15, 1986. The 1985 Legislature appropriated $905,000 for the project. Since the 1985 session, Rafferty and Alameda Dams in Canada have been proposed to replace the 4-foot raise of Lake Darling Dam. Congress changed the current authorization to include Rafferty and Alameda in October 1986. The addition of these two dams to the authorization, however, increased the amount of non-federal costs by $5.0 million.

The Souris River Joint Board is the local sponsor for the project and will coordinate the non-federal cost requirements. The non-federal costs will be paid by a 1-percent sales tax passed by the City of Minot, state funds, county mill levy taxes and miscellaneous other taxes.

The Corps of Engineers has designed the project features in North Dakota, and the Saskatchewan Power Corporation will design and construct the two Canadian dams. The Corps will approve the dam designs and make a $41.1 million payment to the Canadians. The total federal share of the entire project is $72.7 million.

Rafferty and Alameda Dams would provide water for a coal-fired power generation facility and water for irrigation and recreation in Saskatchewan. The dams would provide flood control benefits along the Souris River in Saskatchewan and North Dakota. The dams would replace the Burlington Dam which is currently in a deferred status due to local opposition.

Many of the other features have been or are nearing completion. The levees through Minot were completed in 1979 and the Velva levees are nearly completed. The $12.8 million non-federal cost-share represents $4.5 million of payments to the Corps of Engineers for project features in North Dakota, $4.25 million for the two Canadian dams, and $4.1 million for guaranteeing the 1986 United States/Canadian exchange rate. The City of Minot was required to guarantee the United States/Canadian exchange rate from January 1, 1986 to July 1, 1987, for the $41.1 million total payment to Canada - a potential cost of $4.1 million.

SHEYENNE RIVER FLOOD CONTROL PROJECT

The lower Sheyenne River has experienced flooding problems for many years. As a result, numerous studies and alternative projects have been studied. The projects included in the current selected Sheyenne River Flood Control Project plan represent a culmination of flood control studies for the lower Sheyenne River. The multi-feature project includes the following:

1) Levee construction and diversion at West Fargo;

2) Flood diversion channel from Horace to West Fargo; and

3) A raise of Baldhill Dam north of Valley City.

The levee construction and diversion around West Fargo will provide this area with 100-year flood protection and these projects are actively endorsed by local citizens. The raise of Baldhill Dam is opposed by several groups and alternatives are still being studied. The project can move forward without the raise of Baldhill Dam.

The Sheyenne River Flood Control Project is a multi-feature federal project that requires a non-federal cost-share. Approximately 55 percent of the total cost will be paid by the federal government and the remaining by non-federal (state or local governments) entities. The reason that the non-federal portion is high is that the Corps considers this a new project subject to their new cost-sharing guidelines. The new guidelines require all land acquisition, relocations and damage costs to be paid entirely by non-federal sources. The largest portion of the West Fargo diversion is land and relocation costs. There apparently is not an alternative to paying these high non-federal costs, except not implementing the project. An alternative for the state is to leave the entire non-federal share up to the local governments.

The Corps of Engineers has conducted several engineering studies on the projects and has completed an environmental impact statement. The total project cost is estimated at $40.4 million, $22.4 million federal, and $18 million non-federal. Congress authorized the Sheyenne River Flood Control Project in October 1986. If the project is fully authorized, it is anticipated that land acquisition for the West Fargo levee construction and diversion will begin in 1988. On June 17 and 18, 1982, the State Water Commission passed a motion to enter into a Letter of Intent to work as the local sponsor for the Sheyenne River Flood Control Project.

SECTION 22 - TECHNICAL RESOURCE SERVICE

The Technical Resource Service of the Corps of Engineers has proven to be an asset to water management in the Red River Valley. The Service, funded through the Corps of Engineers Section 22 Program, has allowed the Corps to provide technical assistance and to facilitate communication and coordination between North Dakota and Minnesota.

Prior to 1986, the Section 22 funding for North Dakota was not sufficient to implement the Technical Resource Service. Then in 1986, as a result of committee report language, the level of funding for North Dakota was increased to the $200,000 state limit. This allowed the Corps to accomplish 12 separate tasks utilizing available computer models and the Corps' technical experience. These tasks included modelling to determine the best methods to reduce flood damages, models to improve floodplain management data for better managing floodplains, and economic analysis to determine project feasibility.

During 1986, this information was provided in a timely manner and was used by the state and local water resource organizations for enhanced water management in the Red River Valley. For 1987, the maximum limit for the state, $200,000, was again made available through committee report language. We expect the results this year will be as good as last year.

For 1988 and beyond, we hope that the limit for the state for the Section 22 Program can be made available. For 1988, the limit has been raised to $300,000. Because of the success of the Technical Resource Service, we certainly hope that the Section 22 Program for the State of North Dakota can be funded at the limit.

DEVILS LAKE STUDY

The rising level of Devils Lake is a flood threat to the City of Devils Lake and to other developments around the lake. The Corps of Engineers has been studying an outlet for the lake for the past two years. Such an outlet would likely go to the Sheyenne River, and would allow for the management of Devils Lake below flood damaging levels.

Thus far the study process has screened the number of alternative outlets to four. The greatest concern seems to be water quality. High salt levels in the Devils Lake Chain would mean that any water released to the Sheyenne River may have an adverse impact. This concern may be shared by people along the Sheyenne River and Red River as well as in Canada. Since each of the four outlet alternatives requires a release to the Sheyenne, it is important that additional water quality studies be made to minimize the impacts.

To-date, the study has shown that the benefits of an outlet project exceeds the costs. But because of the complex interstate and international concerns, the potential impacts must be evaluated thoroughly. Also because of the existing authority for the Bureau of Reclamation to develop both an inlet and an outlet, further coordination is necessary. For these reasons, further funds should be made available to continue the study of alternatives. Specifically, funds should be provided to fully evaluate the water quality effects of any outlet. This work could be done jointly by the Corps and by the State of North Dakota. Such work should proceed immediately so the project can be implemented when Devils Lake rises to a greater flood damage level.

DAM SAFETY

During 1986, the new Dam Safety Act (Title XII of PL 99-662) was approved by Congress and signed into law by the President. We have learned that the Corps of Engineers has not been supportive of this act, and has given it a low priority for implementation.

Dam safety has been a concern in North Dakota for a number of years. We feel that implementation of the new act would help to enhance dam safety in North Dakota as well as throughout the country. This act would provide funds to allow states that presently have dam safety programs to improve their effort. This is important because of the number of potentially hazardous dams in the country. This will help to reduce damages from dam failures. For these reasons, the Dam Safety Act of 1986 should be fully implemented.

GENERAL CORPS OF ENGINEER PROJECTS

Many smaller projects are being studied or implemented in North Dakota. These projects are primarily for flood control, and need to be completed as soon as possible. These projects include the English Coulee, closure structure in Grand Forks, the Enderlin Flood Protection Project, Argusville Flood Control Project, Neche Flood Control Project and the Heart River Flood Control Project in Mandan.

RESOLUTION NO. 86-6-425

MISSOURI RIVER BANK STABILIZATION RESOLUTION

WHEREAS, the Flood Control Act of 1944, as amended by legislation sponsored by Senators O'Mahoney and Milliken, assured all 10 states within the Missouri River Basin, equal benefits under a control and management program which came to be commonly known as the Pick-Sloan Plan; and

WHEREAS, the Congress has directed the United States Corps of Engineers to build, operate, and maintain all the elements of the Pick-Sloan Plan; and

WHEREAS, the Pick-Sloan Plan provided for major flood control benefits, recreational benefits, power supply benefits, and certain navigational benefits for states lying below Sioux City, Iowa, through construction of large reservoirs in states lying above that point; and

WHEREAS, the Pick-Sloan reservoirs have been in place for 30 years, thus providing the downstream states all the benefits promised in the Pick-Sloan Plan for the past 30 years; and

WHEREAS, construction of facilities under the Pick-Sloan Plan has, to date, resulted in more than two billion dollars of flood protection to downstream interests which continue to accrue and has allowed them to develop the floodplain of the Missouri for industrial, municipal, and agricultural uses; and

WHEREAS, the United States Army Corps of Engineers has stabilized and continues to maintain the entire channel of the Missouri River from Sioux City, Iowa, to St. Louis, Missouri, spending millions of federal dollars; and

WHEREAS, to provide for the construction of the Pick-Sloan Plan, the State of North Dakota has sacrificed over 550,000 acres of land including several cities and many established farms; and

WHEREAS, few, if any, of the commitments made to North Dakota in return for its sacrifices under the Pick-Sloan Plan have been fulfilled despite great efforts by North Dakota's Congressional Delegation, Legislative Assemblies, Governors, and other state officials, and despite continuing strong support by the citizens of the state; and

WHEREAS, almost two-thirds of the 2.25 million megawatt hours of cheap hydroelectric power generated by Garrison Dam in North Dakota built by the Pick-Sloan Plan is utilized in states outside of North Dakota; and

WHEREAS, the seventy mile reach of the Missouri River from Garrison Dam to Lake Oahe serves as the outlet works and conveyance system to facilitate the transfer of water from the Garrison Reservoir to Lake Oahe for the multi-purpose users of the system; and

WHEREAS, the lands adjacent to the Missouri River between the Garrison Dam and the Oahe Reservoir have been and will continue to be seriously eroded and permanently lost by the local landowners and State of North Dakota because of reservoir management which releases highly fluctuating amounts of clear water capable of eroding and transporting large amounts of soil; and

WHEREAS, soil eroded from the banks of the Missouri River is being deposited as a delta in the headwaters of the Oahe Reservoir thereby causing the water table to rise in adjacent land, and is increasing the frequency and severity of ice jam hazards and has, according to recent Corps of Engineers' pronouncements, endangered 6,000 acres of land containing 45 homes and valuable farmland; and

WHEREAS, the United States Army Corps of Engineers have stated in their FINAL REPORT TO CONGRESS, dated December 1981, concerning Missouri River stream bank erosion that "Bank erosion in this reach results in a permanent net loss of high valley lands. This process, unless halted, would eventually transform the present river into a wide area of sand bars and channels, occuping an increasing proportion of the valley width between the bluffs;"

NOW, THEREFORE, BE IT RESOLVED BY THE NORTH DAKOTA STATE WATER COMMISSION at its meeting on this 18th day of June, 1986, in Larimore, North Dakota, that it requests the United States Congress to place the seventy mile reach of the Missouri River between the Garrison Dam and Lake Oahe within the authorization for the Pick-Sloan Plan and that all obligations for the protection of lands now endangered along the Missouri River in North Dakota be a part of Pick-Sloan Plan, and that the Federal Government assume the responsibilities for these obligations; and

BE IT FURTHUR RESOLVED, that the Congress of the United States authorize and provide funds to the Corps of Engineers for a program for the completion of protection of affected lands along the Missouri River, and for the maintenance of the installed protective works; and

BE IT FURTHER RESOLVED, that funding for this project shall not be a normal federal water project appropriation, but instead shall be charged to the maintenance budget of the Pick-Sloan Plan; and

BE IT FURTHER RESOLVED, that the Secretary of State Water Commission forward copies of this resolution to Senator Burdick, Senator Andrews, and Congressman Dorgan so that they may seek legislation to correct this on-going problem.

FOR THE NORTH DAKOTA STATE WATER COMMISSION:

George A. Sinner

Governor George A. Sinner
Chairman

SEAL

ATTEST:

Vernon Fahy

Vernon Fahy
State Engineer and Secretary

Written testimony for Senate Field Hearing

Senator Quentin Burdick, Chairman
Senate Environment and Public Works Committee
February 11, 1987
Townhouse Motor Inn
Bismarck, North Dakota 58501

by : Michael H. Gunsch, P.E.
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BACKGROUND

The focus of this statement is the conditions along the Missouri River from Garrison Dam to the headwaters of the Oahe Reservoir. Information presented here is contained within the binder and supplements provided to Senator Burdick's office and staff by the BOMMM Joint Water Resource Board. Where applicable reference will be made to these documents.

The Missouri River before construction of the main stem dams was a natural meandering river subject to severe flooding and wide variations in flow. The Pick-Sloan Missouri Basin Program was designed to control flooding, to provide increased navigation capabilities downstream, and to develop irrigation throughout the Missouri River Basin. With control of the river came the availability of hydropower and a method of generating revenues for repayment of project features beyond other benefits provided.

Changes in the erosion-deposition process were apparent soon after the closure of the dams. The Corps of Engineers recognized these changes as did people living along the river. The Corps in its own reports has documented these changes. The next several paragraphs summarize what they have said.

In the natural river prior to the construction of the reservoirs, there was a balance over the years between the destruction of valley lands by erosion of the high banks and the building of new valley lands by sediment deposited during the floods. This process resulted in a continual migration of the river channel within the Missouri River Valley. Due to the balance between the erosion and deposition processes there was no long term net loss of high valley lands.

Since the dam closures, the operation of the reservoir system has eliminated both the floods and the sediment that were essential for the building process. On the other hand, the erosion of the high banks continues. Consequently, bank erosion results in a permanent loss of high valley lands which are never replaced elsewhere in the valley as in the era before the reservoirs. High valley lands are being converted to river channel and sand bar areas, while the width between high banks continues to grow. This process unless halted, would eventually transform the present river into a wide area of sand bars and channels, occupying an increasing proportion of the valley width between bluffs.

CHANGES IN EROSION

Understanding the changes in the erosion-deposition process requires a comparison of controlled and uncontrolled flows. With the closure of the dams the sediment load of the river was virtually eliminated. Sediment once carried by the river is now being deposited in the upper reaches of the reservoirs. Clear water released from the reservoirs has a massive silt bearing capacity and immediately begins to pick up sediments from the river bed and through erosion of high valley lands.

The characteristics of this sediment load differ from pre-dam conditions. Previous sediment loading was a wide mixture of sands, silts and clays. The silt and clay loading has now been drastically reduced. The effects on erosion and deposition were immediate. Sand bars formed with this sediment are much more consolidated and have increased river pressures against the softer more erodable river banks.

The building process of high floodwaters of the past are now non-existent and rebuilding of high valley lands has been halted. Only low sand bars reaching to the upper levels of the currently fluctuating river are presently formed. Therefore, present bank erosion results in the permanent destruction of high valley lands and the widening of the river bed. Lands that have and are currently being lost will never be replaced.

River fluctuations from present levels of power generation are having an effect on the erosion process. Continued wet and dry cycles on the river banks aid in increasing erosion rates. The effect of increased hydropower demands as evaluated by the Corps will result in additional erosion of the river banks, (Document "J" page 7). The adjustment of the river banks due to river fluctuations will remain as long as variations in flow continue.

Winter fluctuations are the most damaging. The Corps operates the river at higher stages during the winter primarily due to ice conditions. These stages are required to provide for the necessary flow capacity beneath the ice. The capacity is needed to allow for the evacuation of waters for flood control storage and for navigational flows downstream. Winter demand for hydropower is also greater resulting in the fluctuation of river stages above summer flows. All of these are operational considerations to provide the benefits designed into the Missouri Basin Projects. High winter stages were not common prior to the closure of the dams. Flows were generally low with little fluctuation resulting in little erosion along the banks.

Ice impacts are not as visual as normal erosion because of unseen effects below ice levels. Ice freezing to the banks and the freeze-thaw cycles from river fluctuations are common with present regulation of the river and power requirements. As flow rates vary the ice erodes bank material around where it had frozen. Without fluctuations ice movement would be limited to spring flows as it had been prior to the dams. Flows beneath the ice, above summer flows, continue the undercutting processes resulting in subsequent bank failures. The effects often remain unknown until spring break-up when large portions of the bank begin to fail.

Existing structures have been damaged by ice flows at several locations along the river. Ice has frozen onto the structures and as river stages were increased the ice removed some of the stone from the structure. The result is a damaged structure and in some cases failure has occurred. The Sundown acres development north of Bismarck (Missouri River mile 1328.65) is one area where ice flows have contributed to the failure of a protective dike.

The Corps of Engineers has taken the position that there is "no evidence that the main stem dams have increased bank erosion rates." (Document "R" page 3 on bank erosion). This is only true when considering the number of acres of erosion. The fact remains that bank erosion <u>is not</u> the same as it was before. Present bank erosion results in a <u>permanent loss</u> of land. The overall effect to North Dakota is that <u>real losses</u>, in terms of land, economic and historical value to the state, <u>have increased</u>. To discuss these losses on an acre for acre basis, considering the changes in erosion, is unreasonable.

CHANNEL AGRADATION

With a controled river came channel degradation, below the dams as clear water picked up a new sediment load, and aggradation, or deposition of sediment in the headwaters of the reservoirs. The Corps of Engineers has studied the agradation problem in the headwaters of the Oahe Reservoir and the Missouri River Flood potential in the Bismarck area, (Document "K").

Agradation of the channel in the headwaters of the Oahe Reservoir was predicted before construction. The resulting delta formation causes a decrease in channel capacity during normal flows and increased probabilities for ice jams, both corresponding to higher water levels in the south Bismarck area. This deposition is directly related to the sediment obtained from channel degradation and bank erosion, as well as sediment obtained from inflowing streams below the dam.

Conditions in the Bismarck area are significant and will result in operational changes for the Garrison and Oahe reservoirs in power generation and flood control. The cost for correcting this situation as reported by the Corps is excessive. Under existing cost benefit ratios all alternatives for flood protection while maintaining existing power generating capacities failed the present Corps cost-benefit ratios.

Reduction of bank erosion through stabilization was one alternative considered in the Bismarck study. Bank protection would reduce the sediment loading reaching the delta formation thus delaying the ultimate conditions when changes in operation would be necessary. This indicates that bank protection is part of the operational consideration for the Garrison-Oahe reach.

EXISTING STABILIZATION

The Corps of Engineers has recognized the bank erosion problem and has had several appropriations for construction of protective works. These projects did not provide for a long term solution. Only through the development of a comprehensive plan, implemented over a period of years, can such a solution be obtained.

Existing projects were constructed under two separate authorities. The Garrison-Oahe projects constructed from 1966 to 1979 were designed to standards developed for navigational channels on the lower Missouri, (Document "D"). These projects are massive and very expensive. They require little maintenance and have performed well in protecting those areas they were designed to protect.

The second set of projects, known as the Section 32 Demonstration Projects, were constructed from 1979 thru 1981. These were "experimental" projects to test new engineering methods and procedures in an attempt to decrease the cost of stabilization measures, (Document "E"). These were untested designs and installed knowing that some could fail. As with any experimental projects not all performed effectively and some need rehabilitation.

Currently a disagreement exists as to who is responsible for these projects. Local authorities were told when these projects were installed they would be required to provide for the maintenance of these structures. A review of the project sites would appear to indicate that the current required repairs are the result of design failure or deficiency and should not be considered as "maintenance". Therefore, the question remains as to who is responsible for such failures and remaining bank erosion problems along this reach.

The Section 32 projects were an attempt to provide bank protection at reduced costs. The river has affected each of these projects differently. Recommendations by the Corps for "maintenance" to damaged structures, such as the extension of refusals and revetments, is required because the river has eroded more material near the structure than was anticipated in the design. Had the projects worked as designed, erosion now endangering some of these structures would not have occurred.

The proposed comprehensive plan suggested by the BOMMM Joint Board would use designs developed through the Section 32 program. They represent a less costly means of bank protection and with lessons learned from past installations future construction would provide improved protection.

CORPS EVALUATION

Warren J. Mellima, Chief, Hydraulics and Hydrology, Missouri River Division of the Corps of Engineers, made a presentation to the 1986 Missouri Basin States Association annual meeting. He later made a similar presentation to the BOMMM Joint Board in Bismarck, July 1986, (Document "R"). This presentation was entitled "An Overview of Degradation, Aggradation and Bank Erosion Trends and Major Changes on the Missouri River and Affected Tributaries". His presentation outlined changes along the river. The widening of the river since the closure of the dams was clearly evident in his presentation graphically showing the result of the permanent distruction of lands along the river.

The Corps recognizes and Mr. Mellima's presentation confirms that "The dams are responsible for a change in the natural erosion-deposition process. High valley lands that are eroded are no longer replaced by accretion lands built up to the former valley elevations. As a result high valley lands are being converted continually to lower elevation sand bars of riverine areas, resulting in a net loss of high valley overbank areas."

LOSSES TO NORTH DAKOTA

The Missouri River is no longer a free flowing natural river system. The Pick-Sloan Missouri Basin Program established control over the river for flood control, navigation, irrigation and power production. The resulting open reaches between reservoirs are now only a conveyance system for providing benifits designed into the other features of the project. The resulting changes in the erosion process have caused net losses to North Dakota for which no compensation has been made.

According to a 1984 economic study (Document "P") completed by J.A. Leitch and L.W. Schaffner, Department of Economics, North Dakota Agricultural Experiment Station, North Dakota State University, North Dakota has lost an estimated 2447 acres of Missouri River bottom lands since the closure of Garrison Dam. This calculates into an economic loss of $614,514 in gross business volume (GBV) and $196,333 in personal income (PI) for 1984 alone. Using a similar study by Mr. Leitch completed in 1977 and averaging total losses for the eight years between studies were $3.73 million in GBV and $1.26 million in PI. These losses are only those related to bank erosion. The inundation of lands by the Garrison and Oahe Reservoirs resulted in the loss of $131 million in GBV and $45 million in PI for 1984.

The Corps predicts continued losses attributable to bank erosion at fifty (50) acres per year based on a period of record from 1978 to 1982. Predicting future losses on such a short period of record is unreasonable. Use of all data since 1954 indicates losses of 80 acres per year. Flows on the river between 1978 and 1982 were not excessive and the amount of erosion was less than it had been in recent years. The amount of erosion is highly dependent upon the amount of flows and fluctuations along the river. Larger flows would result in increased flow velocities thus greatly enhancing the erosion capabilities of the river. The potential for losses in this conveyance reach are significant. When these larger flows do occur many acres of land could be lost.

Econmoic losses suffered by North Dakota are only part of the overall consideration. The loss of increasing amounts of land and channel degradation and agradation result in environmental losses. The loss of irreplaceable native lands and wildlife habitat is signifcant. The BOMMM Joint Board has met with the North Dakota State Game and Fish Department and the U.S. Fish and Wildlife Service concerning bank stablization issues.

Noting that past Section 32 projects resulted in little if any environmental impact (Document "M"), they were unable to make specific comments on the effect of a comprehensive plan. They were requested to submit written statements to this hearing as to their thoughts about a comprehensive bank stabilization program.

RESPONSIBILITY

Losses to North Dakota will continue to accrue and increase unless a comprehensive bank stabilization plan is implemented. The Corps has stated through past communications that without congressional authorization the position taken by the Corps on bank stabilization will remain unchanged. It is therefore necessary for such authorization to be given to the Corps to provide protection to those lands being destroyed by the operation of the Missouri Basin Program. The Corps has reviewed the bank stabilization issue in several studies, which have been noted, and continues to study the problem in a study scheduled for completion in mid-1987.

The Federal Government is and must be held accountable for what has occurred since they have taken control. The entire project benefits from the use of this conveyance reach to provide benefits downstream. The necessary bank protection works should therefore be evaluated on a project basis and costs allocated as in the original authorization for the Missouri Basin Program. The cost benefit ratio of the overall project would not change significantly by the completion of bank stabilization required by project operations.

The complete removal of the Town of Niobrara, Nebraska resulting from project operations has a simliar precident. The total cost of $6 to $8 million was charged to project investments. The same situation is proposed here as conditions also result from project operations.

RECOMMENDATIONS

The Missouri Basin Project benefits and revenues from power generation should pay for the necessary bank stabilization to protect against the continued destruction of land. Electric consumers have passed resolutions in support of this type of proposal. That portion of bank stabilization paid through power revenues would be non-federal dollars.

The overall cost of the operation and maintenance of the Missouri Basin Project is broken out into the following allocation of costs by the Corps of Engineers and Bureau of Reclamation: Flood control 24.9%; Power production 33.6%; Navigation 18.2%; and Irrigation 23.3%. These are composite figures from all main stem facilities.

In the binder provided by the BOMMM Joint Board a proposed authorization is presented suggesting that $2 million be spent annually on bank stabilization until the situation has been brought under control, (Document "O"). The resulting projects would then be maintained as part of the operation and maintenance of the system as a project investment.

Western Area Power Administration's annual report lists total revenues from the Pick Sloan Missouri Basin Program at $159.1 million in 1985, and $121.4 million in 1984. If the allocation was made to power revenues, as previously noted, power rate adjustments of about 0.42 to 0.55 percent may have been required. This may not have been necessary depending upon revenues generated and current repayment requirments.

Included in the annual report are the total funds invested in the Missouri Basin Program for the fiscal year ending September 30, 1985 and 1984. The total federal investment was $203.2 million in 1985, and $128.8 million in 1984. The increase in non-power costs would have been approximately 0.65 to 1.03 percent of the federal funding for the Missouri Basin Program. This minor increase would allow for the completion of the Missouri Basin Program in an area that has been ignored as part of project operations.

The BOMMM Joint Board's proposal would give authorization to the Corps to proceed with a comprehensive bank stabilization plan. This consists of the development of the 41 sites noted in the Corps studies, (Document "J"), at a cost of $26.8 million, and other sites that may be necessary in the future. Each site would require review and authorization as deemed necessary by the Corps in consultation with State and Local agencies. The $2 million annual cost would be added to the total of current project investments and funded by project benefits and power revenues through a specific line item under the Corps operations and maintenance budget. The allocation would result in the development of approximately two to four sites per year. The present Corps priority listing would be used and updated periodically. This proposal would not and is not intended for the channelization of this reach of the river; protection would only be constructed in areas of need using Section 32 methods.

Understanding the workings of Congress some changes in this proposal may be necessary to gain acceptance. The facts remain that losses being suffered by North Dakota and landowners along the river <u>are</u> the result of the operation of the Missouri Basin system. The Federal Government is operating these facilities at the expense of North Dakota.

The opportunity to present testimony at this hearing is greatly appreciated. If any additional information is requested by the committee, the BOMMM Joint Board will provide it if at all possible.

Prepared by,

Michael H. Gunsch, PE
Engineering Consultant

February 11, 1987

Senate Environment and Public
Works Committee
Senator Quentin N. Burdick, Chairman
Box 2057
Bismarck, ND 58502-2057

Dear Senator Burdick:

On behalf of the Cass County Joint Water Resource District, comprised of the Southeast Cass Water Resource District, Maple River Water Resource District, North Cass Water Resource District and Rush River Water Resource District, we support the Sheyenne-Maple River Flood Control Project as authorized by the Water Resources Development Act of 1986. The Corp of Engineers is working to implement the Sheyenne diversion at West Fargo and Riverside with completion scheduled in 1991. This is a project that has a 13 to 1 benefit cost ratio, has excellent local support and will furnish flood protection to an area that has been seeking such protection for over 30 years. We urge that the construction of the project be implemented as soon as possible and that Congress fund the project at the appropriate time so that no delay occurs.

We urge the Committee to direct the St. Paul office of the Corp of Engineers to proceed with work on the Maple River Reservoir portion of the project as soon as possible. It is our understanding that funds have not been budgeted to date for this project. Because we consider all of the authorized project as a unit, we particularly urge that the Maple River portion thereof be accelerated so that its construction can be coordinated with the remainder of the authorized project.

The delay by the Corp of Engineers will substantially delay flood control benefits to the areas along the Maple River and particularly to the area west and north of West Fargo. This in turn creates a problem for property owners to be protected by the Maple River project as their portion of the project will be stalled while the remainder of the project will be implemented. We consider the Maple River portion of the project an integral portion of the overall flood control and we definitely feel that a problem will arise if this project takes over five years. Currently the Corp is estimating it will take ten years.

We specifically request that the Committee review this with the Corp of Engineers so that funds can be earmarked to start the planning process on the Maple River in 1987. We believe the Chief of the Corp of Engineers can eliminate some of the procedures relating to the implementation of the Maple River project particularly in view of the wording of the enabling legislation.

We believe that the St. Paul division of the Corp of Engineers is interpreting the language of the legislation too conservatively and we further believe that the language is sufficiently clear so that the project can be funded and implemented within a much more reasonable time frame than being presently proposed.

We are enclosing a copy of a portion of a letter from the North Dakota Disaster Emergency Services office dated May 3, 1985, with information relating to flooding in eastern North Dakota to which the Maple River is a large contributor and damages in Cass County to which the Maple is a primary contributor. This dry dam concept would have far-reaching effects by helping to relieve flooding conditions downstream from Fargo to Canada.

CASS COUNTY WATER RESOURCE
DISTRICT
Box 2806
Fargo, ND 58108-2806

By: _____
Its Chairman

DRT:pjb
Enclosure

STATE HEADQUARTERS
Disaster Emergency Services
Box 5511
Bismarck, North Dakota 58502 - 5511
701-224-2111

GEORGE A. SINNER
Governor

RONALD D. AFFELDT
State Director

MAJ. GEN. ALEXANDER P. MACDONALD
Adjutant General

May 3, 1985

Mr. Gordon Sletmoe
Cass County Emergency Manager
Box 2806
Fargo, ND 58108

Dear Mr. Sletmoe:

Our data base for the floods of 1975 for Cass County is not totally complete by county; however, I will provide you the exact figures where I can, and will estimate the others to the best of my ability.

As you know, we had two presidential disaster declarations in the eastern part of the state in 1975. The spring flood was declared on May 24 and the summer flood was declared on July 11.

Our losses to both public and private properties in the eastern part of the state were close to $550 million. The greatest losses occurred to the crops in the summer flood, as fields were under water for several weeks; therefore, the crops (which were excellent) were totalled.

In Cass County, your losses from the two floods (both public and private property losses) were about $140 million. As the water moved north, our losses were compounded, as more farm land was under water.

In Cass County, losses (public property, roads, bridges, etc.) were $2.5 million. The county had losses in both floods. There were eighteen other political subdivisions (cities) with losses in Cass County also, which are included in the figure above.

Funds we handled for assistance to political subdivisions to repair roads, streets, bridges, etc., in Cass County were $1,740,491.45.

Other monies spent include: an estimated $280 thousand by the Corps of Engineers in flood-fight activities; $40 million in emergency loans through the Farmers Home Administration and Small Business Administration; $250 thousand by the United States Department of Agriculture in emergency conservation measures; $200 thousand for mosquito spraying through the Federal Emergency Management Agency, and $100 thousand by the State of North Dakota.

I don't know how much the politicial subdivisions spent in Cass County for which they were not reimbursed, but a good guess would be 20% of $2.5 million.

I hope these figures can assist you. It's difficult for us to find records by county, except for the public assistance programs that we administer directly. Many of the programs in disaster recovery are handled as totals by state by various agencies; therefore, they are not generally available by county. I have no idea what the expenditures have been by the volunteer agencies such as the Red Cross and Salvation Army. As for the individual losses in floods, (other than crops) it is hard to determine, as many of our people had no flood insurance at that time.

Should you need any other information that I may help you with, please ask.

Sincerely Yours,

Ronald D. Affeldt

RONALD D. AFFELDT
State Director

RDA/ar

Flood years are 1897, 1947, 1948, 1950, 1965, 1966, 1969, 1975, 1978 and 1979.

The average yearly loss due to flooding in North Dakota is now at approximately 53 million dollars.

From 1964 to 1982 the flooding loss for the State of North Dakota was one billion dollars.

F.J. Waxler
Executive Director
Phone: 282-6396

Pat Denne
Technical Advisor
Phone: 282-9673

State Office
Rte. 1, Box 34C
Phone: 258-9249

NORTH DAKOTA
RURAL WATER SYSTEMS
ASSOCIATION

Hwy. #83 North • Bismarck, ND 58501

PRESENTATION BY THE NORTH DAKOTA RURAL WATER SYSTEMS ASSOCIATION TO THE SENATOR BURDICK CONFERENCE AT BISMARCK, NORTH DAKOTA ON FEBRUARY 11, 1987.

My name is Alfred A. Thompson, I am past president of the North Dakota Rural Water Systems Association and live near Bismarck, North Dakota. I am making this presentation in the absence of Fay Waxler who was scheduled to appear on the program on behalf on the North Dakota Rural Water Systems Association, but was taken ill and could not make the presentation. This formal draft is being sent to cover the informal remarks which I made at the time of the hearing.

The North Dakota Rural Water Systems Association is a non-profit association which serves nineteen rural water systems and ninety-six (actual 111) small cities on an individual membership basis. North Dakota Rural Water Systems serves 16,600 users (meters) on 10,606 miles of water pipeline. Total population served by rural water systems is 70,360 persons, more than one tenth of the total population of the state of North Dakota. The average density per mile of consumers on rural water systems is 1.55, with the highest density 3.31 meters per mile and a low density of .3 meters per mile.

Cost of construction to each meter has ranged from a low of $2,800.00 and a high of $7,000.00. The low construction costs figure was achieved early in the advent of rural systems approximatley in the year 1969. The high cost was paid on the latest established water system in the year 1986.

As has been alluded to by persons making prior presentations to the oversight committee, Kermit Ueland of Cooperstown, North Dakota and Audrey Boe Olson of Fortuna, North Dakota, fron-end costs of service to the consumer are a critical problem

in the establishment of water systems throughout North Dakota, whether rural or urban. I need not remind you that water for domestic use is not a luxury. Everyone understands the human need for potable domestic water. But it is not enough that water is potable. A dependable adequate supply must be available if human needs are to be served.

When one speaks of water in North Dakota he must look to one of two sources of water, aquifers or flowing streams. The primary source for most of the existing water systems has been aquifers. But aquifers are gradually being depleted and in some areas are no longer reliable as an adequate source. And though it may come as a surprise to you, we are finding that some aquifers are suffering pollution from the migration of pesticides and other contaminants, even though the source of those contaminants may be many miles away from the well which serves the system.

The only other reliable source of water for domestic use is surface waters and these are generally flowing streams. In North Dakota streams which can be relied upon for a continued adequate supply of domestic water are the Missouri, Sheyenne, James, Pembina and Souris Rivers, with the Missouri River being the most reliable when viewed in terms of long range planning.

The area south and west of the Missouri River can be served only by the induction of Lake Sakakawea waters into the area through the Southwest Pipeline Project. This project is estimated to cost approximately $150 million. Construction is underway but cannot be completed without help from the federal government.

East of the Missouri River the most promising source of water for domestic purposes is the M & I part of the Garrison Diversion proposal. But I am happy to learn that another letter has been added to that program, namely, the letter "R", so that the program now contemplates delivery of water for municipal, industrial and rural uses.

To give you some idea of the importance of front-end money for rural and

small town domestic useage, I wish to quote from the figures that are most readily available to me, those which come from my own rural water system, the Burleigh Water Users Cooperative. Our source of water is the Missouri River. That water is available to our system at absolutely no cost prior to treatment. Each hook-up must pay a debt service charge of $30.00 per month. Thereafter each user pays a cost of $3.00 per 1,000 gallons for water used. Average useage systemwide is approximately 5,000 gallons per month. Simple calculation then reveals that an average household bill is $45.00 per month on the Burleigh Water Users Cooperative system.

It has been suggested that MR&I users would be required to pay a surcharge on water as high as $25.00 per month. This amount added to the $30.00 per month anticipated debt surcharge would bring the user charge to $55.00 per month before one drop of water is used. Add to that $55.00 an average useage of $15.00 per month, and the individual would have a monthly water bill of $70.00 per month.

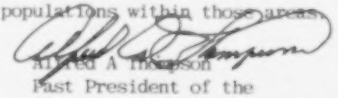
As you can readily see, any surcharge for water off the pipeline system would place water at a premium and probably beyond the reach of the average prospective user. Most unfortunate would be the fact that the remote areas would be put to the highest charge for useage, yet those remote areas most often are the areas most in need of a domestic water supply, whereas cities such as Fargo and Grand Forks already have an installed water system and would pay the lowest surcharge.

It has been suggested that it is necessary to place a surcharge on MR&I water in order to finance the program. But we contend that MR&I water service is an integral part of the Garrison Diversion program and should be treated as a preference since it serves a human need and satisfies a vast portion of the program which has been downgraded or abandoned. If it is necessary to impose a small surcharge for domestic useage, we strongly urge that the surcharge so imposed be a "Postage Stamp Rate", exactly as was done with rural electricity in the REA program.

Finally, much of the job of providing pure adequate dependable water to North Dakota people remains undone and will remain undone until front-end money is made available to existing rural water systems for add-ons and extensions to those existing systems.

Mr. Harry Berg, President of Burleigh Water Users Cooperative, has told you of the situation which confronts that organization and its patrons. Approximately 100 homes within a "Gray Area" around the city of Bismarck were denied the privilege of hook-up to the Burleigh Water Users Cooperative system at its inception by reason of the city's reluctance to release that area to rural water service in anticipation of the city's future growth. But the city has not expanded and those 100 users still must rely on an undependable, chemically unfit source of water for domestic use. And he has told you about the Hay Creek trailer court which lies about 1½ miles from the City of Bismarck, unable to obtain city water service, now without an adequate potable supply of domestic water, unable to be served by Burleigh Water Users Cooperative but without the front-end money necessary to get service into the court. Finally, he has told you about the area known as Apple Creek Subdivision which has approximately 58 homes and is in need of an adequate supply of domestic water but does not have the front-end money to make connection to the Burleigh Water Users Cooperative system. These problems exist throughout the state of North Dakota. Only the availability of front-end construction money from the United States government can assure a solution to these problems and satisfaction of the need which persons living within areas similar to those recited continue to display.

The North Dakota Rural Water Systems Association wishes to thank the Senator and his staff for the opportunity of appearing before you and the opportunity of portraying the financial problems which confront North Dakota Rural Water Systems membership, the small towns throughout the state and populations within those areas.



Alfred A Thompson
Past President of the
North Dakota Rural Water Systems Association

Written Testimony

submitted to

Senator Quentin N. Burdick
Water Resource Oversight Hearings
on
Federal Water Supply Loan Legislation

February 24, 1987

by

Audrey Boe Olsen
Finance Specialist
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The Midwest Assistance Program, Inc. (MAP), founded in 1979, is a private non-profit, 501 (C)(3) corporation with a volunteer Board of Directors consisting of one half low-income representatives and one half Community Action Agency represenatives from the nine midwestern states of Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota and Wyoming.

MAP is a Regional Technical Resource Center (RTRC) and is identified as a Rural Community Assistance Program (RCAP). As a RCAP, MAP's mission is to assist small rural communities to identify and solve their water and wastewater problems. The total activity of MAP is related to this mission. Current funding for MAP's ten member professional staff comes from a grant from the Department of Health and Human Services - Office of Community Services and special project funds from the Northwest Area Foundation, Public Welfare Foundation and the Missouri Department of Natural Resources and the Missouri Environmental Improvement and Energy Resources Authority.

The following testimony is the result of experience Midwest Assistance Program staff has gained in working with more than 250 small rural communities with population of 2500 or less during the past seven and one half years. The testimony will address some of the major concerns we see with a federal water supply loan program as it relates to small low-income rural communities.

1. Current federal assistance for water systems

At present there is no federal assistance for domestice water supply/water systems outside of the Farmers Home Administration's Community Facilities program. The FmHA Community Facilities program appropriations have been cut back in recent years with applications and requests for funds surpassing allocations in a number of states. At the present time FmHA State Offices are being required to prepare loan portfolios on current borrowers to be offered for sale to private lenders. Municipalities are being "graduated" to the private sector. It is a concern that some private lenders have not had the background, knowledge and understanding of small rural borrowers and how these loans will be serviced.

HUD's Community Development Block Grant (CDBG) program offers some federal dollars to the states to use as grants for improved public facilities. However, the application process, administrative paperwork once a grant is received, and the limitation on grant dollars available make this program a very small and complicated resource to meet major public facility infrastructure needs across the nation.

We urge the Congress to either reconstitute the FmHA grant/loan program with sufficient dollars to meet the needs or to consider establishing another means to assist small low-income rural communities address water system infrastructure problems.

2. Interest rates fit for low-income communities

Small towns, just like larger communities, do have major infrastructure development and rehabilitation needs. The 50,000 population trigger proposed in S.B. 366 of the 99th Congress would greatly limit any participation in a federal water supply loan program by communities in our nine midwestern states. We have determined there are approximately 4,900 communities under 2,000 population in our nine state area. These small towns are all faced with an eroding property tax base and the majority are not able to finance major capital expenditures on their own. Less than 50% of the communities under 2,000 in this nine state area can anticipate any significant population increase. Most can expect a gradual decrease in the number of people available to pay the cost of improvements in the future.

Municipal bond rates in North Dakota and Montana currently range in the 7-9% range for small communities. While that is significantly lower than market rates of just a few years ago, it remains too high for a number of small towns. They just don't have the bonding capacity available to repay a loan.

A strictly loan program may not be an answer to low-income rural communities unless that interest rate is more attractive than current market rates. Any new federal water supply loan program should look seriously at a portion of the funds earmarked for poverty rural communities with interest rates in the 2-5% range to be workable and affordable for small towns.

3. Program efficiency and protection of small communities from excessive costs

Any new loan program implemented by the Congress needs to be as red-tape free as possible. Small towns have no full time paid staff or expertise to understand or follow the federal jargon and procedures. Most small town boards or councils are manned with "volunteers". They have a genuine concern and desire to provide safe drinking water for their communities; but they approach problems with limited knowledge and no clear cut way to find out information. Less than 10% of the 4,900 towns under 2,000 population in our nine states have access to the Federal Register locally. A majority do not have a continuing contact with a "city" attorney. Even less have a financial consultant or advisor they contact periodically. Small towns do not need a "mile of paperwork per mile of pipeline".

Any new loan program should consider deleting federal Davis-Bacon wage requirements for small rural towns in order that the town can use local contractors and local labor without the lengthy paperwork process that Davis-Bacon triggers. An example to consider is the CDBG program which requires Davis-Bacon wage considerations - small local contracting firms are not able to compete with larger firms in the wage arena or in keeping up with the administrative paperwork that is required.

A new loan program should have a "fast track" for any loans for less than $100,000 to minimize the paperwork and cost of ad-

ministration for small towns. It is extremly difficult for local rural revitalization and community development to take place when red-tape and strings create a maze in which local officials get hopelessly lost. Cost is not the only important factor in looking at water and wastewater systems and water usage. Rural communities are in an awkward position if new industry inquires about availablity of water for locating a plant. Invariably economic development and rural revitalization hinges to a large degree on the availablity of water and wastewater systems.

4. Identifying and inventorying water system needs

A vast majority of the community water systems in our nine state area were installed between the turn of the century and WPA days, approximately 50 years ago. There have been upgrading and updating of wells and pumps as well as storage, however, for the most part, the original distribution systems remain. These systems have long surpassed the design life of 40 years and many are in a state of disrepair. The combination age of the system, mineral properties in the water and/or mains, and irregular schedule of maintenance over the years have caused municipal water systems to deteriorate to present state.

For the most part the states have been slow in identifying and inventorying water system needs. In our nine states we have been able to document four states that have printed reports or survey results on water system needs. Attached for the Committee's consideration are portions of reports and/or reprints of information from the states of Nebraska, Montana and South Dakota. In Iowa a "broad based non-directional" study was completed in 1985 with a report produced by Iowa's Infrastructure Advisory Commission on Intergovernmental Relations in June, 1986. Copies of this report can be obtained from the Governor's Office.

As an example of the extent of the need for water system improvement the state of Montana is cited. In 1984 Governor Ted Schwinden appointed a Task Force on Infrastructure to look at the problems in his state. The Governor's Task Force on Infrastructure Final Report, December, 1984 documents a total of 264 capital projects by 75% of the incorporated cities and towns in Montana with an estimated cost of $100 million to meet current water repair needs. This cost figure is conservative in that it does not include rural water systems, unincorporated places (of which Montana has twice as many as incorporated cities and towns), or special purpose governmental water districts. The report continues and documents that 35% of the 279 rural water systems in the state are in need of major upgrading to bring them into complience with the "10 State Water Quality Standards". In addition 55% of the identified rural water systems had insufficient financial resources for repair or replacement of existing facilities and that some daily financial obligations cannot be met. (pages I44-I45 of Attachement A.) These unincorporated places and special purpose governmental water districts have little or no tax base or taxing authority.

Note: The attachments referred to have been retained in committee files.

The situation of needs is similar in Nebraska. The Policy Issue Study on Municipal Water Needs published by the Nebraska Natural Resources Commission in 1983 states that 64% of the municipal water systems have inadequacies in the distribution component. See Attachment B.

In South Dakota the South Dakota Municpal League surveyed municipalities in 1980 to look ahead and determine major problems for the ten years to 1990. While the number one problem was identified as inflation, followed by sources of revenue, taxes and water; water development cannot take place without a handle on the other three. See Attachment C.

These three examples point out the need for detailed identification and inventory of water system needs by the states. A new federal water supply loan program should require states to establish an identification mechanism and priority system. The states could look to the EPA construction grants yearly priority process and identification system as an example.

5. Water conservation ties

Water conservation ties should be considered in any new federal loan program. Water as a natural resource is to be conserved. Most small communities rely on underground aquifers as their water supply. When communities pump thousands and hundred of thousands of gallons of water per day from these aquifers - only to have the water wasted or "lost" - the problem needs to be addressed. Excessive water leakage in a community system often finds its way into the sewer system and the sewer treatment plant can become overloaded with water that does not require treatment. Leakage is not the only problem, however. In many small towns the continuance of low water rates, no residential metering, inadequate management practices, and lack of accountability are contributing factors to poor water management as well as detriments to water conservation.

Midwest Assistance Program has been a forerunner in the private foundation realm of working with foundations to fund low-income communities conducting water audit and leak detection surveys as a means of water and energy conservation. A water audit is an accounting of all the water that goes into the distribution system and includes leak detection and quantification, meter testing, pump efficiency testing and system inventory. Over the past three years MAP staff has assisted small low-income towns in Iowa, Nebraska, Minnesota and Montana in conducting water audits realizing substantial savings in reduced water production and energy costs. Only a few of the communities needing this type of audit have been helped while the majority of needs remain unmet.

There is still much need for technical assistance to small communities in the area of water development and water conservation. Most state agencies have had to reduce their staff involvement in on-site technical assistance because of increased regulatory load caused by the Safe Water Drinking Act. A little of this slack has been picked up by state rural water associations with the circuit rider programs, however most state associations have only one or

Note: The attachments referred to have been retained in committee files.

two staff as circuit riders. Few agencies or organizations have staff time to make routine community visits to small rural communities to develop working relationships with operators and build a continuing on-site technical assistance activity. Most communities find they have to have a serious problem before any help comes. Even less available is the person who can attend the town board or council meeting to help educate the elected officials and constituency to understand regulations and requirements. Water conservation can't begin until the operators and managers of the system thoroughly understand what they have.

In closing, we urge the Committee's consideration of the special needs of small rural communities in deliberating any new federal water supply loan program. Thank you for the opportunity to speak on behalf of small rural community needs.

STATEMENT OF WILLIAM R. MILLS

The Committee is concerned about the problems created by the main stem dams on the Missouri River. The problems can be classified into erosion, inundation and inequities. My concern is that we do not overlook the third--inequities.

Whether the government should be involved in certain functions can be honestly debated. For example, navigation, irrigation or generation.

But, surprisingly, we find the Corps of Engineers and the United States Justice Department arguing the virtues of government theft. Theft by the government, that is.

Their methods differ. The Corps has been admitting for twenty years that it is flooding land on which it has no flowage easement. Annually it reports the problem is under study. The Corps position appears to be that they will owe you all your life rather than beat you out of it.

When the Oahe Dam and Reservoir was under consideration, the Corps of Engineers advised Congress that they needed the river land north to the Bismarck Memorial Bridge. The landowners, largely through the late Senator Young, compelled the Corps to move its taking line ten miles downstream.

I did not become the owner of land in this area until after the taking line had been clearly established. A letter from the Corps emphatically stating that they would not be taking any more property was, in fact, required by he county zoning board before we could have their approval for zoning.

It should come as no shock to the committee that government agencies are highly motivated toward the acquisition of money and power. The Corps is not an exception. When the Corps had to move the Oahe taking line 11.2 miles downstream, it was not considered a Congressional Commandment, only a temporary setback. The Army could bypass the village and send a platoon back later to take it over. Each year the Corps has the property slandered as dangerous. This depression of value keeps the cost benefit ratio favorable so Congress will ultimately consent to the Army occupation of our territory.

The Corps wanted to make hydropower in the wintertime which would require the release of water under ice conditions. The downstream states would not tolerate the flood conditions which result with the channel capacity diminished by the ice. So the Corps adapted a program that the only place on the Missouri they would make large water releases in the winter time would be in North Dakota. The winter releases at Garrison are much greater than their summer releases. The government has an historic right to flood to something less than a six foot stage. The Corps deliberately floods each winter to a thirteen foot stage, and exceeds that stage repeatedly.

For over twenty years the Corps has responded to congressional inquiries and admitted they are flooding land they do not own.

The Corps has admitted that the changes in the capacity of the channel at Bismarck are due to the corps operation of the river. The bottom of the channel is filling up with the dirt washed off the banks upstream. When the bottom comes up, so does the top of the

73-540 O - 87 - 5

river in any given flow. This filling of the bottom below Garrison only affects the Bismarck-Mandan area.

The Corps has admitted that the sediment being dropped at the headwater of the Oahe Reservoir a few miles downstream from Bismarck is causing the current to slow down upstream, and now that channel is filling and is causing still higher water at Bismarck.

The Corps has admitted that we still have erosion but no longer have accretion. Bank owners lose high firm land but no longer gain high firm land. The Missouri is becoming a wide, shallow river with many sandbars. But it is doing this at the expense of the riparian owners.

The Corps came up with the solution to erosion -- bank stabilization. On my land, however, they put the rock hundreds of feet inland from the river bank. When we tried to protect our own bank line as we had for twenty years, the Corps stopped us. Their flooding had made it adjacent wetlands, and Congress gave the Corps the power to stop us.

In theory there is a procedure that provides payment for a government taking. If one's property is confiscated by the government for public purposes, you can sue in the Court of Claims under the doctrine of inverse condemnation. After a couple of decades of run-around, we commenced an action in the Court of Claims in 1981. It is certainly not my purpose to try my case to this committee. However, if I, who have forty years of legal expertise at my disposal and have hundreds of acres involved and miles of waterfront endangered, find myself helpless, how can you rely on the system to do justice to my friends and neighbors who are

without these resources?

The Justice Department is even worse than the Corps. It hires an expert witness, who testifies the land under four feet of water is not wet.

The Justice Department conceals and destroys evidence. For example, at the insistence of Senator Burdick and Congressman Dorgan, the Corps agreed to finalize their report on what land is being flooded and what the Corps proposed to do about it. An excellent report was prepared, bearing the date of June, 1985. The United States Justice Department ordered the Corps to delay the report and keep it in the deliberative process so it would not be distributed. The Corps, finding itself between a rock and a hard place, destroyed all copies. However, two copies found their way out. I have one.

The Justice Department erects multitudes of barriers to an expeditious determination of a claim. Those who are comforted by the thought that a citizen can find redress for his grievances in the Court of Claims are not familiar with the United States Justice Department's capacity to fight a war of attrition.

When the Justice Department could not prevent government agencies from disclosing material the agencies were charged with maintaining, the United States Justice Department sought an order from the Court of Claims prohibiting the claimants and their lawyers from talking to the "clients" of the Justice Department which included every federal employee. A guy could get in trouble buying a stamp.

It would be inappropriate to take the committee's time going over all the government imposed inequities. What has happened to me and my land is not worth an investigation by this committee. But it is significant because I have assembled over the years full and complete documentation of the events as they affect this representative sample of the problem. With the committee's consent, I will file with them a written and documented chronology supplementing my testimony.

To close, I would sum up with a message that appeared in the London Times the year I began to practice law:

"The greatest tyranny has the smallest beginnings. From precedents overlooked, from remonstrances despised, from grievances treated with ridicule, from powerless men oppressed with impunity and overbearing men tolerated with complacence, springs the tyrannical usage which generations of wise and good men may thereafter perceive and lament and resist in vain."

Thank you.

William R. Mills

STATEMENT BY THE BOARD OF MANAGEMENT
OF LOWER HEART WATER RESOURCES DISTRICT
MORTON COUNTY, NORTH DAKOTA

PRESENTED BY GEORGE J. TOMAN, A BOARD MEMBER
February 11, 1987

Recognition of the need for a positive flood protection system at Mandan received its impetus the early 1940's when devastating high waters from the Heart River inundated the business district and one-half of the residences. The history of the many earlier floods was recited in the February 1957 Corps of Engineer's memorandum, entitled "Lower Heart River Local Flood Protection Project". Officials of the City of Mandan initiated successful efforts to provide a system of protective works separating the Heart River from the metropolitan areas of Mandan. Congressional assistance initiated such a program using the U.S. Army Corps of Engineers to study, evaluate, recommend, and construct a substantial protective works. Their efforts, with Congressional approval, resulted in constructing a levee system completed in 1952, and reinforced in 1957-1959. Modifications to the system have resulted from time to time, as has the administration and local oversight of the works. Presently all of the local control functions are vested in the Lower Heart River Water Resources Board, Morton County, North Dakota.

Economy of the area in the 1950-1960 era, after closure of Garrison Dam and completion of the flood protective levee, influenced and triggered a growth expansion of the City of Mandan and its environs. This encouraged occupancy of the Heart River delta plain between the Missouri River and the Heart River. As early as 1977 the Lower Heart River Water Resources Board recognized the need for reinforced

protective works, justified by the large-scale commercial and industrial development on the Heart River delta plain, particularily along the Memorial Highway between Mandan Proper and the Missouri River, which in local parlance is referred to as "The Strip". Included in the various industrial and commercial entities that developed in the area were the waste water treatment facilities for the City of Mandan at an investment having a present day value between $5 million and $6 million dollars.

The original flood control project was designed for a discharge of 50,000 cubic feet per second through Mandan, and 40,000 cubic feet per second through the unit below Mandan to point of confluence with the Missouri River. This design anticipated three feet of free board at design flows without consideration of discharges under ice-flow influences. Original design flows approximate a 50-year flood frequency occurrence.

In the mid 1970's the Lower Heart River Water Resources Board initiated a reassessment of values of properties and improvements in the area of the flood plain. Results indicated a very favorable cost benefit ratio for consideration of improving the levee flood protective works in the lower unit. This was brought to the attention of the U.S. Army Corps of Engineers who then conducted studies under provisions of Section 216 of Public Law 91-611.

Subsequently in the 1980-1984 time span the Federal Emergency Management Agency (FEMA) also conducted studies and made determinations establishing influences of 100 year frequency floods. These determinations became the parameters and criteria for risks. FEMA also indicated that an effective flood protective works should be

installed based upon a 100-year flood frequency to eliminate need for flood insurance in the area. The criteria also added impetus to the need for adjustment and reinforcing the current flood protection project being proposed by the U.S. Army Corps of Engineers in their Omaha District Office.

In November of 1986 the Corps of Engineers submitted a draft copy of their findings and recommendations for updating and improving the protective levees to meet present criteria under the title "Definite Project Report - Flood Protection Project - Heart River of Mandan, North Dakota". The report is in two volumes: Volume 1 is the Summary Report, and Volume 2 is the Technical Appendix.

Briefly, the plan anticipates raising of approximately 2.7 miles (14,900 L.F.) of levee beginning at the N.D. Hwy. 6 Bridge continuing downstream along the existing levee to a point adjacent to the south limits of the Mandan Waste Water Treatment facility. The levees will be raised along this levee line beginning with a foot and one-half raise at the upstream end, increasing to a three feet plus raise at the lower extremity.

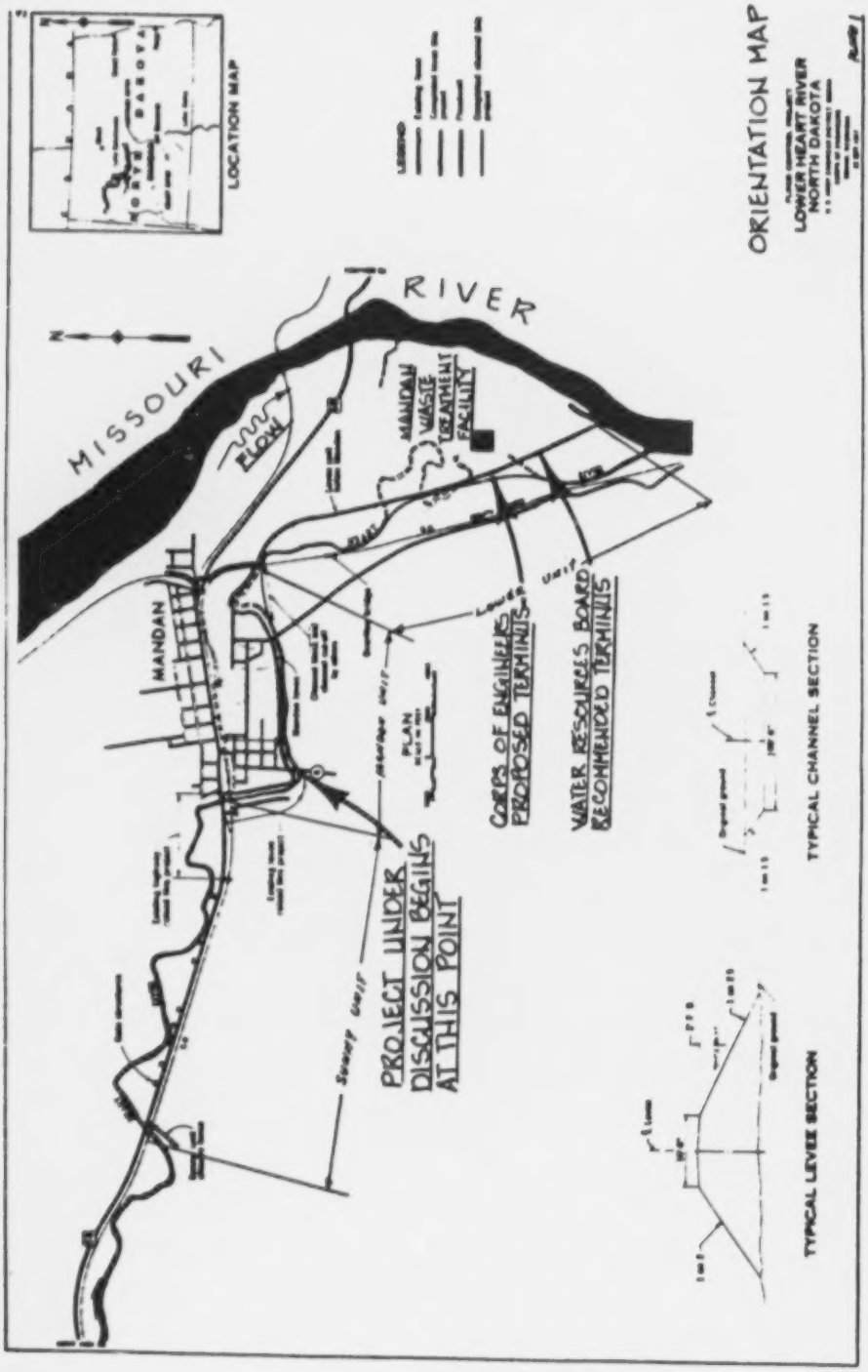
The Board of Managers has reviewed the project as outlined, and concurs with the majority of the proposed improvements. However, we have a problem with the terminus point at the downstream end of the proposed raising as indicated in the present design concept. We feel there is ample justification to continue the levee raising for an additional 2,000 feet, or a total project run of approximately 16,900 L.F. versus the proposed 14,900 L.F.

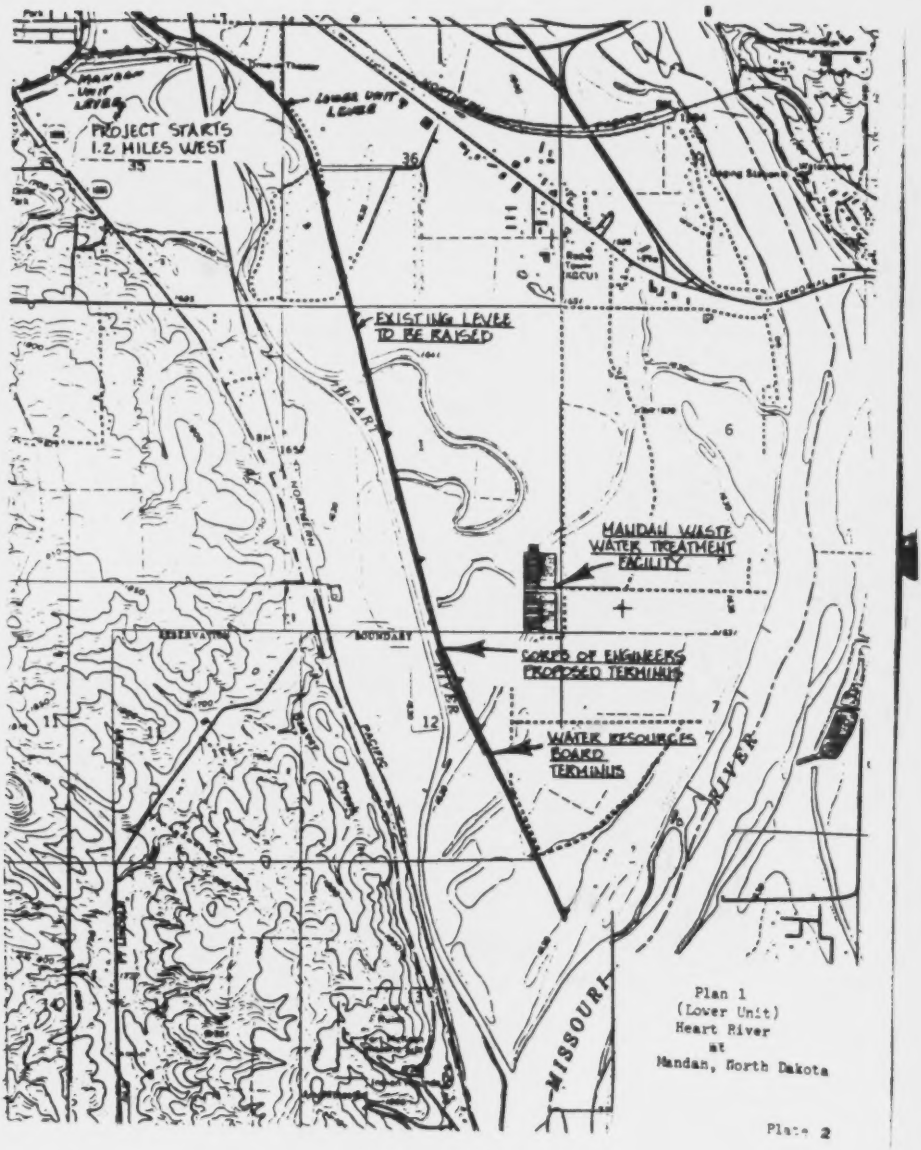
Should levees be overtopped in this region such extension will assure the continued integrity of the waste water treatment facility located 1000 feet to the east of the proposed Corps of Engineer terminus of the levee raising. Evidences of near topping have been observed on the present 40,000 cfs levee system as it exists in this area. If levee raising is terminated at the presently proposed Corps of Engineer's terminus, an overtopping of the levee for 2000 feet below that point will flow to the waste water treatment facility, thus endangering the treatment system. If the levee improvement is extended an additional 2,000 feet, any overtopping of levees from Heart River flows below the requested extension terminus will flow into the drainage patterns of the Missouri River because of natural topography. This will assure the integrity of a $5 million to $6 million waste water treatment facility.

The Water Resources Board feels that such extension should be part of the reinforcement of the protective works, since our share of participating in the costs can be provided under the cost sharing formula. However, for the District to assume the entire costs of the requested 2000 lineal foot extension will impose an extreme hardship upon the district of which a large part consists of farm lands.

A technical report supporting and substantiating our request will be forwarded to the Committee within the time limits set forth.

Thank you.


LOCATION MAP
ORIENTATION MAP
LOWER HEART RIVER
NORTH DAKOTA
MISSOURI
RIVER
ELBOW
MANDAN
MANDAN WASTE TREATMENT FACILITY
PLAN
CORPS OF ENGINEERS PROPOSED TERMINUS
WATER RESOURCES BOARD RECOMMENDED TERMINUS
PROJECT UNDER DISCUSSION BEGINS AT THIS POINT
TYPICAL LEVEE SECTION
TYPICAL CHANNEL SECTION



Plan 1
(Lower Unit)
Heart River
at
Mandan, North Dakota

Plate 2

SUPPLEMENTAL DATA
TO
STATEMENT BY THE BOARD OF MANAGEMENT
OF LOWER HEART WATER RESOURCES DISTRICT
MORTON COUNTY, NORTH DAKOTA
Presented 11 Feb. 1987 before the Honorable Senator Burdick,
Chairman Environment and Public Works Committee
100th Congress at Bismarck, N.D.
24 February 1987

1. INTRODUCTION:

Presented herewith is supplemental material substantiating and justifying the concerns and problems of the Lower Heart River Water Resources Management Board involving the proposed Mandan Levee System Reinforcement Details of the proposed work as outlined in the U.S. Army Corps of Engineers - Omaha District report entitled "Definite Project Report - Flood Protection Project - Heart River at Mandan, North Dakota".

2. CONCERNS & PROBLEMS:

a. The chief concern is vulnerability of the Mandan Waste Water Treatment to flooding. Construction of the facility placed the aeration ponds over the southeasterly leg of an oxbow resulting from abandonment of the main river channel and rerouting the active Heart River via a new channel.

b. An overtopping of the levee at or below the presently planned terminus, or along the next 1,800 feet below the proposed terminus point will permit flood waters to back into the oxbow channel. Such backup water can find its way to the center area of the aeration pond astraddle the abandoned channel. Seepages through aquifers under the channel will direct water under the aeration cell. Lower heads within the pond can permit inflow of flood waters when flood water heads exceed interior lagoon water elevations. Blow-outs will occur. They are caused by differential head elevations which are not uncommon.

c. Another problem arises from the real possibility of any prolonged saturation along the outside toe of the lagoon dike system. Mild winters with resultant minimal or negligible front penetration render the aeration pond south dikes vulnerable to sloughing. Normally, dikes are frozen and work to our advantage. When the water level within the ponds is at optimum operating level, the probability of dike loss increases because of the higher differential head between lagoon water and flood water.

d. Loss of ponds and aeration equipment, even for short periods for as little as ninety days, makes the entire waste water treatment facility ineffective. The City of Mandan is under rigid treatment parameters established by the North Dakota Department of Health and the Environmental Protection Agency. Disruption of such on going treatment jeopardizes environmental safeguards and subjects the City and the District to liability.

3. VIABLE SOLUTION:

a. Extension of the proposed levee raising an additional 2,000 feet will alleviate concerns or problems expressed. Such extension will place any overtopping waters of the levee below the overbanks which form part of the Missouri River flood plain. Topography on the land side of the proposed 2,000 foot terminus favors flows to the Missouri River. Also, the overbank elevation presently will preclude any overtopping waters from flowing northward to the waste water treatment site.

b. Minimizing or excluding build-up waters from the oxbow leg of the abandoned channel will reduce potential blow outs within the aeration cells created by flood water pressures.

c. Using the cost factors established by the U.S. Army Corps of Engineers, extension of the levee the additional 2,000 feet is estimated to cost $255,238.50 based upon a four foot finished level. If the raise follows the present top alignment of the levee as adequate protection, the total cost, using the same factors, is $205,000.00 based upon a 3.3 foot raise.

4. TABULATIONS AND DIAGRAMS:

a. Location maps - accompanied original written statement of 11 February 1987.

b. Cost estimates - attached hereto.

c. Typical cross section - attached hereto.

5. SUMMARY:

a. Extension of the levee raising project an additional 2,000 L.F. to withstand a 100 year flood will accomplish the following:

1. Reduce potential of blow-outs in aeration cell caused by flood water.
2. Reduce probability of lagoon dike slough-off of southern earth dike containments.
3. Permit orderly run-off to Missouri River of any flood waters that may overtop the levee system below the extended protection.
4. Accomplish the same at minimal cost for:

   4 foot raise = $255,250

   3.3 foot raise = $205,000

   Costs are based upon Corps of Engineer assigned values.

For Board of Management
Respectfully submitted,

Rolf Herbst

Rolf Herbst, RPE 1192
Consulting Engineer for Lower Heart Water Resources District

COST ESTIMATES
RAISING LEVEE SYSTEM ADDITIONAL 2,000 L.F. BEYOND PRESENT PLAN

NOTE: Unit prices are the same as those used by the Corps of Engineers in their report entitled: "Definite Project Report - Flood Protection Project - Heart River at Mandan, North Dakota" Volume 1 - Page 72.

Additional 2,000 L.F. 16% ± of total length of planned raise of 12,000 L.F.

4.0 FEET FOR 2,000 L.F.

Item No.	Description	Quantity	Unit Price	Total
1.	Embankment	24,623. C.Y.	$4.50/CY	$110,803.50
2.	Underseepage Control	16.0% of	$189,000	30,240.00
3.	Turn Outs	600. C.Y.	4.50/CY	2,700.00
4.	Stripping	6. Ac.	1,815.00/Acre	10,890.00
5.	Seeding	6. Ac.	650.00/Acre	3,900.00
6.	Surfacing	365. Tons	15.00/Ton	5,475.00
7.	R.O.W. Acquisition	4. Ac.	1,500.00/Acre	6,000.00
8.	R.O.W. Borrow	2.5 Ac.	1,500.00/Acre	3,750.00
	Sub-Total			173,758.50
	Contingencies 20%			34,600.00
	Total Direct Costs			208,358.50
	Engineering & Design	16.0% of	$209,200.00	
			(33,472.00)	
	Supervision & Administration	16.0% of	$83,800.00	
			(13,408.00)	
	Total Indirect Costs			46,880.00
	TOTAL PROJECT COST FOR ADDITIONAL 2,000 LF - 4 FEET RAISE			$255,238.50

3.3 FEET FOR 2,000 L.F.

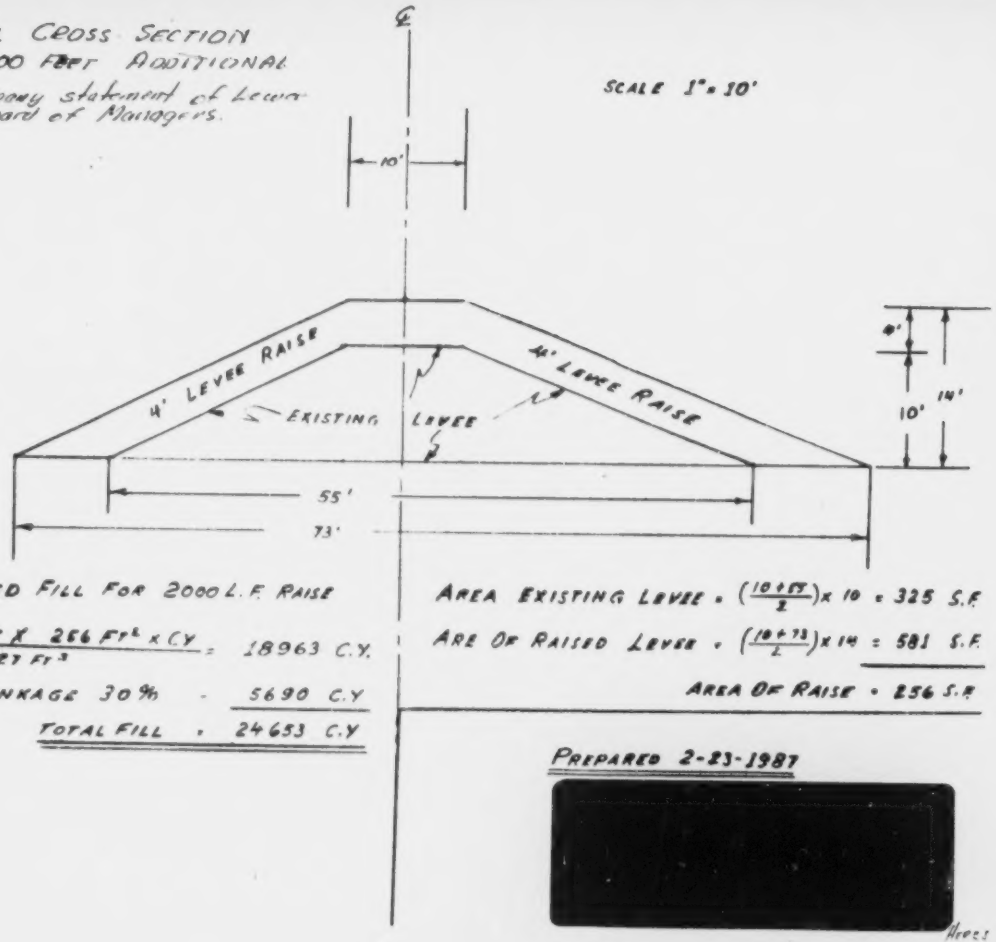
Raise based upon present gradient and levee elevations, requiring raise of approximately 3.3 feet; this results in reduction of 20%± from total calculated for 4.0 foot raise.

ADJUSTED TOTAL FOR 3.3 FEET RAISE FOR 2,000 L.F.	$205,000.00

TYPICAL CROSS SECTION
FOR 2,000 FEET ADDITIONAL

To accompany statement of Lewis Heart Board of Managers.

SCALE 1" = 30'



REQUIRED FILL FOR 2000 L.F. RAISE

$\frac{2000 \text{ Ft} \times 256 \text{ Ft}^2 \times \text{C.Y.}}{27 \text{ Ft}^3}$ = 18963 C.Y.

+ SHRINKAGE 30% - 5690 C.Y.

TOTAL FILL = 24653 C.Y.

AREA EXISTING LEVEE = $\left(\frac{10+17}{2}\right) \times 10$ = 325 S.F.

ARE OF RAISED LEVEE = $\left(\frac{10+73}{2}\right) \times 14$ = 581 S.F.

AREA OF RAISE = 256 S.F.

PREPARED 2-23-1987

[redacted]

Hayes

Statement of the U.S. Fish and Wildlife Service

Missouri River Bank Stabilization

My name is Stan Zschomler and I am the Field Supervisor of the U.S. Fish and Wildlife Service stationed here in Bismarck.

In 1981, we evaluated the Corps of Engineers Section 32 Demonstration and Evaluation Program of Bank Stabilization Techniques used along the Missouri River.

Our evaluation looked at three aspects, fish , wildlife and endangered species. In summary our findings were:

Fish - The use of riprap helps increase a substrate so to have a slight increase in food base. Dikes without environmental notches fill in with sand and silt thus causing a loss of water habitat. Overall, there could be considered a slight benefit to fisheries habitat if public access could be provided to some sites.

Wildlife - Most types of construction resulted in minimal habitat loss. That generally happened to trees when clearing is needed for construction activities. This can be avoided by using barges as construction sites. Tree and grass plantings will replace any losses.

Endangered Species - Bank stabilization has the ability to both protect and harm trees that bald eagles use. We found no losses occurring to perch and roost trees. In 1981, we did not evaluate impacts of bank protection on the least tern and piping plover, now

endangered/threatened species. If islands are not modified it seems logical that their habitat should not be impacted.

In listening to the views of the local people, it appears not anyone's intent to use bank stabilization as a means of channeling the river so it looks like the river at St. Louis, Missouri. We enthusiastically support that view.

For your consideration, I would like to leave a couple thoughts you may wish to incorporate into the bank stabilization project you're seeking.

- Provide public fishing access to stabilization sites whenever possible.
- Consider total comprehensice plan and study through the metropolitan areas next to Mandan-Bismarck.
- Seek early advice on endangered species and special provisions or analyses that may be needed at specific sites.

We look forward to working with each of you. Do not hesitate to call at any time.

February 10, 1987

To: Senator Quentin Burdick
and Members of the U.S. Congress Public Works Committee

From: Anton J. and Mildred Belohlavek
Tony and Belinda Belohlavek
Loran and Mildred Eckroth

Re: Missouri River Bank Stabilization

Purpose of this memo is to inform you of the impact that a lack of proper bank stabilization has had on our land holdings approximately 10 miles south of Mandan, ND. Since the beginning of the Garrison and Oahe Projects, our land has been greatly affected by the uncontrolled fluctuations of the river. In that period of time we have lost approximately 23 acres of prime bottom timber land. We have at our own expense tried a number of stabilization measures including tying large trees to the banks that have fallen into the water. All of these measures we have attempted have not been successful in the long period of time. If more significant measures are not taken many more acres will be forever lost. Over this period of time we have learned not to complain to the Corps of Engineers about our problem as their response has always been total acquisition of all of our properties between highway 1806 and the river. This farm was purchased by our family in 1930 and is presently owned by the family. If we were to lose the property in question it would make the farming operation economically unsound. Consequently acquisition is NOT a solution to the problem. In the past we have cooperated with all government agencies in the acquisition of land for the Oahe Project. This included the moving of wells and feedlots from an area that has never and <u>will never</u> be subject to flooding as it is located upstream on the Little Heart River. The continued erosion has caused us to move approximately one mile of fence on two different occasions. At another point an irrigation tractor was nearly lost to the river.

It is our firm hope that after these <u>many</u> years the U.S. Government will hold true to its initial statement regarding bank stabilization and that this problem be remedied by them as soon as possible. Thank you for your kind consideration.

Roger Bourgois
HC 9, Box 206
Bismarck, ND 58501

February 27, 1987

The Honorable Senator Burdick
Federal Building
Bismarck, ND 58501

Dear Senator Burdick:

The Missouri River bank erosion is the most intense erosion problem in North Dakota when an acre of land is lost, 36,300 plus tons of soil is lost (15 depth). These losses are mostly during the winter months and early spring during unnaturally high flows from power generation. In the same respect, the thermo electric generation industry is reclaiming the land they take coal out of at the cost of $23,000 per acre average. (Reference, North American Coal). More top soil is replaced on hilltops (generally thinly covered) than there was before it was removed in the mining process; in addition the rocks are removed. It absolutely astounds me that the thermo electric industry can do such a good job and the hydro electric industry is a total flop at reclamation and preservation. I don't understand why they are not responsible for their actions. Since the agency involved with protecting the Missouri is non-responsive to the terrible damage being done, maybe these policing powers should be turned over to the Missouri River states.

Sincerely,

Roger Bourgois

Dakota Water Users, Inc.
P.O. BOX 476
FINLEY, NORTH DAKOTA 58230
Phone
524-2393

February 6, 1987

Arlene Haunson
Office of Senator Quentin Burdick
Box 2057
Room 306, Federal Building
Bismarck, ND 58502

Dear Ms Haunson:

The Board of Directors of Dakota Water Users, Inc., a rural water system from Steele County North Dakota, asks for your continued support for the funding and maintenance of potable water distribution systems.

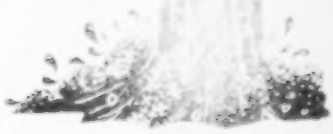
We are also opposed to the raising of the Ball Hill Dam, as it could affect losing users in that area.

Kermit Ueland will represent Dakota Water Users, Inc. for an oral testimony to further explain Dakota Water Users support of funding legislation and opposition of the raising of Ball Hill Dam.

Sincerely,

Lee Nerdahl

Lee Nerdahl, President
Board of Directors



CITY OF DICKINSON

City Hall - Administration

SENATOR QUENTIN N. BURDICK
CHAIRMAN
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

COMMITTEE FIELD HEARING
February 11, 1987

Townhouse Motor Inn
Bismarck, North Dakota

TESTIMONY OF
CITY OF DICKINSON

As Prepared By

KENNETH N. DUKART
CITY COMMISSIONER - WATER & SEWER PORTFOLIO

P. O. BOX 1037 — 122 2ND AVENUE WEST — DICKINSON, NORTH DAKOTA 58601 — (701) 225-6765

CITY OF **DICKINSON**

City Hall - Administration

The Southwest Water Pipeline has been, and will continue to be, a major goal of the people of Southwest North Dakota. Many dedicated people have spent countless hours working towards the completion of the Southwest Water Pipeline. The State of North Dakota has already spent considerable sums of money to get the project from the concept stage to actual construction.

The people of Southwest North Dakota are a realistic and patient people. We realize that a project of this magnitude will not happen overnight and that it will not happen without a strong commitment from us. Our biggest fear; however, is that the pipeline will lose its priority as the state's number one water project and become just another good idea.

The importance of pipeline water to our area is so great that it cannot be measured in dollars and cents, nor can I spend the next few minutes telling you about its importance and cover all the reasons we need to have the Southwest Water Pipeline completed.

A rural water distribution system is of the utmost importance if we are to continue to have a strong agricultural base in Southwest North Dakota. Energy exploration and production, mining, and light manufacturing jobs have a stabilizing affect on the area's economy, but farming is still the number one reason we are able to live and work in our region. Without a supply of good water and a distribution system to deliver that water to area farms, we can expect to add yet another obstacle to those people wishing to be farmers and wishing to be good successful farmers.

In today's highly competative and highly technical beef industry, for example, a source of good, plentiful water could mean the success or failure of a cattle operation. Farming is our tradition in Southwest North Dakota and for that tradition and way of life to continue, our farmers need water for their families and for their operations.

We all know that the world is a highly competative place, and that to be successful we must continually be progressive and plan for the future. No longer can we expect our young people to stay in an area without being able to offer them a job. We raise an abundance of agricultural products, but are unable to process those commodities into marketable products. In most cases, we lack a plentiful supply of good water needed to process those

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CITY OF **DICKINSON**

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agricutltural products. Without those manufacturing plants or others like them, our young people continue to move away to get their first job.

Water is not the only missing ingredient to providing jobs for our people. But at this point in time, it is restricting our ability to attract medium to large sized food manufacturing plants because we cannot guarantee a constant source of water. An opportunity to capitalize on our agricultural industry is being missed - an opportunity for our farmers and an opportunity for our young people.

Currently there are a few communities in Southwest North Dakota that are capable of producing large quantities of water necessary for industrial needs. Even if those communities can produce the quantities needed, they cannot guarantee a set amount of water to a processing plant on a daily basis. An open winter with little or no runoff, a dry spring, or a hot dry summer will drastically alter the amount of extra water that can be diverted to industrial uses in any city in Southwest North Dakota. Without a guarantee, most companies requiring large amounts of water, are not going to locate in South West North Dakota - companies that could supply jobs to our young people, and infuse new wealth into our communities.

I would like to touch on one other reason we need the pipeline - quality of water. I serve on the Dickinson City Commission and have been assigned the water and sewer portfolios. I'm no expert on water, but in the past nine months, I've learned a lot about the process of purifying water for human consumption. The raw water supply for the City of Dickinson comes from Patterson Lake and is probably the toughest water in the State of North Dakota to treat. The final product meets all health standards but at the same time, takes some getting used to because of the amounts of chemicals and clorine we need to use to produce safe water.

Different turbidity levels require different processes to produce safe water. We experience dramatic changes in our raw water quality in very short periods of time. Summer down pours, spring run off, changes in temperature, and other such conditions quickly change the character of the raw water. Each time the character of the raw water changes, plant operators must make changes in the method of treating water by using different chemicals, longer retention times, and so forth. Unfortunately,

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it takes longer for plant operators to adjust to changes in turbidity than it does for the turbidity to change in the lake. We end up with an overlap where the quality of water we produce is not what we would like it to be.

This is a problem we've lived with for many years and have learned to manage. Being able to have access to Missouri River water would allow us to have a better quality of water to treat resulting in a better final product. Water from the Missouri River system does not go through the dramatic changes in turbidity that we experience with Patterson Lake water. The changes are far less frequent and far less dramatic.

The people of Southwest North Dakota are in need of water in order to sustain our present way of life. If we are to be progressive and competative with the rest of the world, we need to have a safe, reliable, and constant source of water. In our opinion, the future of our agricultural industries and our cities, depends on completion of the Southwest Water Pipeline and a rural water distribution system.

Our thanks to you, Senator Burdick, and to members of your committee for allowing us the opportunity to talk about the Southwest Water Pipeline. I hope I have conveyed to you our desire and our need for the Southwest Water Pipeline.

P. O. BOX 1037 · 122 2ND AVENUE WEST · DICKINSON, NORTH DAKOTA 58601 (701) 225-6765

OFFICE OF MAYOR
H. C. BUD WESSMAN, MAYOR
(701) 775-8103

City of Grand Forks
402-2ND AVENUE NORTH-BOX 1518 GRAND FORKS, NORTH DAKOTA 58206-1518

February 11, 1987

Senator Quentin Burdick
Senate Office Building
Washington, D. C. 20510

Dear Senator Burdick: Dear Quent:

I am in receipt of your January 28, 1987 letter in which you informed me that you would be conducting a committee field hearing on some of the water issues affecting our state. The hearing was held February 11, 1987 in Bismarck. Due to time constraints, it was not possible for me to attend that meeting, but I would like to offer the following.

The City of Grand Forks has been working with the Corps of Engineers on an English Coulee closure project, which would be at the mouth of the English Coulee. I believe they call this a "205 Project". The project was dependent on a holding dam on the English Coulee to be constructed by the Soil Conservation Service. I am happy to report to you that the English Coulee holding dam is well underway, and it is possible that construction could be started in late 1987.

The purpose of this letter is to inform you that the City of Grand Forks is much in need of the English Coulee closure, which is under study by the Corps of Engineers, as it will remove a large area of our city from the 100 Year Flood Plain.

I feel that this project would be more cost effective at this time because of the lower interest rates. I would appreciate it if these comments could be become a part of the testimony of the field hearing that was held in Bismarck.

If you have any further questions, please feel free to contact me.

Yours very truly,

Bud

H. C. "Bud" Wessman
Mayor

cc Frank B. Orthmeyer, City Eng./Dir. of Public Works

HCW:bm

Feb 9, 1987
Center, N. D.

Dear Senator Quentin Burdick,

I called your office on Feb 9, 1987 but, you were not in.

I am writing in regard to the Missouri river bank Erosion meeting to be held Feb 11, 1987 at the town House in Bismarck

I would like this letter to go into the record of the meeting. as I will not be able to attend that meeting. My brother who lives in Montana will not be able to attend at this time.

We do our property on the river at Sanger, N. Dakota; our land is directly south of the Cross ranch property like.

We have a jetty which connects our land that was done a few years ago by the State water Commission and Corps of engineers.

There has been not much results from it; to benefit our erosion problem. so therefore we feel rip rapping should be done to improve and correct the problem all above the jetty.

If there are any necessary forms to be filled out for information needed or any way we might be advised in the matter, would be appreciated.

We are in hopes for a reply as soon as possible.

Mr. Andy Mork has said there was a March 1st deadline.

We are very concerned about this matter and would appreciate your efforts in bringing results in correcting the problems for all of us who have land on the River Front.

Thank You
Joyce Hitt
Box 1245
Center, N. Dakota
58530.

LAKE ANDES-WAGNER WATER SYSTEMS, INCORPORATED
LAKE ANDES-WAGNER IRRIGATION PROJECT DEVELOPMENT

P.O. BOX 818
WAGNER, S.D. 57380-0818
PHONE: 605-384-3689

February 20, 1987

Honorable Quentin N. Burdick
U.S. Senate
511 Hart
Washington, D. C. 20510

Dear Senator Burdick:

We would like to inform you of the progress of the Lake Andes-Wagner Irrigation Project in southern South Dakota.

In 1986, we had authorizing legislation introduced and hearing's were held in the House and Senate sub-committees, with little progress indicated by the committees.

We felt the Garrison commission proposal dominated the discussion shortly thereafter, and used up all of the available committee time.

We have worked long and hard for our small 45,000 acre project, that would reflect the entitlement of the State of South Dakota to a federally funded water development project as partial compensation for South Dakotas contribution to the Pick Sloan, Missouri River Basin Program.

In 1987, we hope to be able to negotiate our authorizing legislation with Chairman, George Miller and Chairman Bill Bradley, with the assistance of the South Dakota congressional delegation and other Missouri Basin State interests.

Issues of concern to all interests include cost share and surplus crop penalties.

The cost share issue needs to be addressed within the context of the Missouri Basin Pick Sloan for the benefit of all projects in the Basin.

The Lake Andes-Wagner Project people have already expended $1,650,000 of local and State loan funds, to provide a final Planning Report and Environmental Statement for authorization purposes.

We are also very concerned, because of the income forgone from the prime lands inundated by the mainstem reservoirs in South Dakota.

In Charles Mix County, in which the Lake Andes-Wagner Project lies, we estimate income forgone, the past 35 years, to be $44,000,000. This is without indexes or interests, so you can readily see we have paid a huge price upfront, and to date have not received any of the promised irrigation benefit to help stabilize this area.

The surplus crop issue is very complex and causes great concern for the future of irrigation development in the Basin. To flirt with surplus crop penalties attached to any authorizing legislation, is asking for big trouble in future years, to say nothing of the discrimination it advocates.

We need to have this issue eliminated completely, if possible, to assure management with farmers that it is safe and prudent to enter into a long term federal contract, to construct a feasible irrigation project.

In the case of Lake Andes-Wagner Project, we are confident that the extra feed grains and forage produced by the use of irrigation could be used in the immediate (60) mile radius area.

We continually export cattle from the area, but in time of drought cattle and hog numbers decrease, because of the lack of feed supply locally. We would like to maintain an even balance year in and year out.

Somehow we must convince the decision makers that we will not affect the so-called national surplus. To have a supply of extra food in America should be looked on as one of God's special blessing's and not as a curse, as some would advocate.

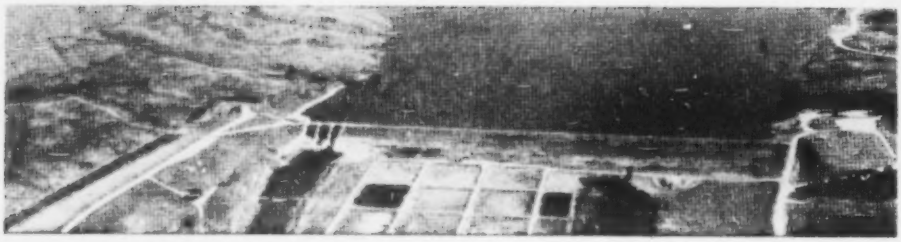
It is the desire of the Lake Andes-Wagner proponents to display unity and cooperation within the entire Missouri Basin for the mutual benefit of all concerned.

It would be a pleasure to have your participation when the debates are held on the above subjects and other interests you may have.

Sincerely,

Leo Holzbauer

Leo Holzbauer,
Chairman
Lake Andes-Wagner
Water Systems, Inc.
Board of Directors



LAKE ASHTABULA LAND OWNERS & USERS ASSOCIATION

Senator Burdick.

I understand there will be a hearing on water projects soon We know that the Corps of Engineers will be there drumming up projects so I will write this letter as a Reminder that there is not now nor has there ever been any local support to the Raising of Ball Hill Dam. they will infer that there is support of course and they tried very hard to solicite Valley City support at a Recent meeting here. I urge you to examine any claims and statements made by the Corps very carefully thank you for listening.

Sincerely
George Frashch Pres.

Honorable Quentin N Burdick
United States Senator
Box 2057
Room 306, Federal Building
Bismarck, ND 58502

RE: Missouri River Bank Stabilization.

In 1983 landowners adjacent to the Missouri River organized an association for several reasons, one being Missouri River bank stabilization. The Missouri River Adjacent Landowners Association (MRALA) consists of approximately 160 landowners who own at least 98 percent of the land adjacent to the river.

The bylaws, adopted by MRALA, have bank stabilization as a goal. All landowners we are aware of are in support of and highly recommend the Federal government begin an active program of stabilizing the river bank. The landowners are ready and willing to sign easements and assist the Corps of Engineers in bank stabilization.

Presently, the area between the Garrison Dam and the Oahe reservoir is the longest original river segment remaining. The heavily wooded bottom lands are the only natural scenery remaining as Lewis and Clark observed in 1804. However, erosion of the bank will eliminate this beauty for future generations if something is not done soon.

The present landowners for all practical purposes have discontinued destroying the natural wooded bottoms for agricultural purposes. Land clearing has virtually ceased and the current landowners see the beauty and value of leaving the land in its present state.

The erosion of the banks of the Missouri River have been a problem of increasing proportions since the closing of the dam in 1952. The fluctuating flows have caused the soft sand and hum us bank to erode at an alarming rate. The time has now come. Bank stabilization is the only answer. In addition, the present areas of bank stabilization completed in past years need important maintenance. Huge sums of money could be lost if the present work is not protected.

The present landowners compliment you for your foresight and understanding of this problem in having this hearing today. We, as an association of landowners, are willing and ready to assist your work in securing funding for this important project. Future generations shall be the recipients of your efforts today.

Thank you for accepting this written testimony.

Paul R Feyereisen Paul R Feyereisen 2-9, 1987
Missouri River Adjacent Landowners Association
425 Browning Avenue
Bismarck, ND 58501

F. E. "BUD" MURPHY
(LTC. ~~USAR~~ AUS Ret.)
806 - 5TH AVENUE, S. E.
JAMESTOWN, NORTH DAKOTA 58401
DIAL: 252-0148

Sunday, February 8th 1987

Senator Quentin N. Burdick,(D-ND),
511 - Hart Senate Office Bldg.,
Washington, D. C. 20510

Dear Senator Burdick:

I'm very pleased that You are Chairman of the Environment and Public Works Committee,and hopefully we can get The Garrison Diversion Project completed soon. I attended Garrison Diversion Public Hearing,held at Dakota Inn,on Tuesday,Feb.3rd at 7-PM;there was probably 24 - People at this Meeting,and the Most Vocal were the "ANTI'S",especially A Canadian Representative,Richard Madsen,and A Young Fellow from Fargo-Moorhead Area representing The Audubon Society.

I thought all of those People had AGREED to accept the proposals that were finally going to help complete this long delayed Necessary Project. I sat next to An Old National Guard Friend - C.Emerson Murry,The Director,whom I thought did A Good Job defending and explaining some the complex problems with this Big Project?.

Am enclosing a copy of a letter that I wrote to Mr. Murry the next day after the Hearing Meeting,and asked Him some questions I had,and offered some suggestions.

I would like to be at the Bismarck Hearing on Feb.9th - but have several conflicts;but I do Thank You for Your Letter of Invitation to appear at Your Bismarck Meeting. I'm sure that Emerson Murry will be at The Bismarck Hearing and You are both welcome to use my name and suggestions that I've made in the past;as I'm most anxious that this Important Water Project be completed as soon as possible?.

My Big Concern is that The 'Anti's are forgetting about The 31-Cities and The Industrial Firms that need this water;PLUS - The Garrison Diversion Waters will help to keep an adequate supply of water in THE MANY Aquafirs under all of these Rivers; and now we've added These Rural Community Fresh Water Systems for Drinking purposes?.

I visited with Chester Schmid from New Rockford today,and that community is very concerned and also hopeful that things settle-down and complete this Project. I've felt all along that too much emphasis has been placed on The Irrigation Acreages; and The Costs per Farm and Acres that are to be Irrigated,scare Easterner on The Costs!

Best Wishes to You and Your Fine Staff's both in The State and Washington,D.C..

Respectfully submitted,

F. E. "Bud" Murphy

HC.9 Box 184
Bismarck, ND 58501

February 26, 1987

The Honorable Senator Quentin Burdick
511 Hart Office Building
Washington, D.C. 20510

Dear Senator Burdick:

I am a landowner in the Sundown Acres subdivision north of Bismarck. At your meeting on February 11 in Bismarck, our problem was one of the many presented to you.

I was out of town on February 11, so I prepared a brief outline of our situation, along with some pictures that graphically illustrate the severe erosion problems we have at Sundown Acres. The outline and pictures are enclosed.

Thank you for your help and support. Please let me know if there is anything I can do to help in the resolution of the issues concerning the Missouri River.

Sincerely,

Mark A. Oswald
(701/224-0428)

February 9, 1987

SUNDOWN ACRES EROSION PROBLEM

Sundown Acres is a subdivision located north of Bismarck, ND at river mile 1328. The river bank along the subdivision has experienced severe erosion problems since failure of the jetty at river mile 1328.65 in February, 1984. At that time, higher than normal water releases from Garrison Dam destroyed the major portion of the structure during a 72-hour period. As a result of the failure, we have experienced losses of 10 to 30 feet of river bank per year for the last three years!

Several landowners contacted the Corps of Engineers after the damage in 1984, to determine if they would repair the structure. We were told that funding was not available to repair existing structures. (During this same period, a major stabilization construction project was underway on the opposite side of the river!)

In 1985, the Corps told us the organization that handled construction of projects on the river no longer existed and that we really should be talking to the State Water Commission, since it is the State of North Dakota's responsibility to maintain the structures built by the Corps of Engineers. The Corps maintains their position is supported by the "ABC Agreement" signed by former Governor William Guy July 23, 1964. In the meantime, the river continues to chew away our land.

Several landowners spent more than $20,000 during 1985, for stone and concrete rubble to protect their property from the erosion problems caused by the Corps of Engineers and the Garrison Dam. Our feeble attempts to protect our land and homes have slowed the erosion, but have not stopped it. It appears the only solution will be bank stabilization. The federal government tampered with the river and is causing the problems that exist today. Why are private citizens forced to accept responsibility for a project the government neglected to complete?

The most frustrating aspect of this problem is that hundreds of millions of dollars have already been spent by the federal government to protect areas downstream from Sioux City to St. Louis. According to the Corps of Engineers' own analysis, billions of dollars of economic benefit have occured by construction of the Pick Sloan Project. North Dakota continues to pay for this benefit through land lost to construction of the reservoirs and erosion problems created by the erratic water releases from Garrison Dam. We hope you have the influence in Washington, D.C. to convince your fellow senators that the Pick Sloan Project is not complete until the State of North Dakota and its citizens are protected from the problems created by Garrison Dam.

Pembina River Basin Association

Concerned for Wildlife, Flood Control, Irrigation, Recreation, Environment

February 1_, 1987

Senator Quentin Burdick, Chairman
Senate Environment and Public Works Committee
United States Senate
Washington, D.C. 20510

Committee Field Hearing
February 11, 1987
9:30 A.M.
Town House Motor Inn
Bismarck, North Dakota

Overview of proposed Corps of Engineers Project - Pembilier Dam in the Pembina River Basin.

Submitted by: Leon F. Dubourt
Secretary
Pembina River Basin Association

Senator Burdick:

This presentation cites several considerations as a plausible interdisciplinary and coordinated approach to water management in the Pembina River Basin.

Conceptually, the management plan views flood control with a basin perspective and a commitment to optimize the use of all the resources within the basin while addressing the reservations inherent to development in a unique area of the state. It is the suggestion of our association that the elements exist to accommodate the multiple objectives of the varied partisans in the basin. The subsequent commentary will identify these elements and hopefully demonstrate their value as a rational for action.

As you know the Pembilier Project was authorized with a 1.3 to 1 benefit/cost ratio. On a subsequent review by the Corps of Engineers the ratio fell below unity and consequently was not eligible for funding under applicable government rules. Contributing cost factors to this fall were, of coarse, inflation and high interest rates. There were, as well, two decisive changes made by the Corps in their reassessment. They moved the planting dates used in their assessment from April 15 to May 15, thereby substantially reducing the impact of delayed seeding on the project benefits. Secondly, the historical reference period was changed from 1940 to the early 1900's. The result was a diminished flood frequency curve and the inclusion of the aberration of the 30's in determining the benefit/cost ratio.

73-540 O - 87 - 7

The flooding in lower reaches of the Pembina Basin, which prompted the earlier authorization, continue unabated or controlled in any manner. Flood frequency has steadily increased over the past 40 years as, among other factors, federal agricultural policy has encouraged farm practices and actions which have destroyed natural restraints to flood inducing run-off on the spring snow melt. The intensity, i.e. shorter duration, and peak volumes have similarily increased as evidenced by USGS stream flow records. There have been 10 floods since 1944 and in the past 17 years there were 5 major and 2 minor floods.

In flood years farm production, on up to 55,000 acres, have been subjected to anywhere from complete loss to 50 to 60% reduction because of late planting, silting or leaching of nutrients. This has caused disruptions in local tax bases while, imposing additional demands on their funds for repairs to public facilities, mainly township and county roads.

Canadian interests in the lower Pembina Basin have erected dikes along the international border which places an additional burden on U.S. farmers and communities. A U.S./Canadian agreement provides for elimination of these impediments to natural drainage patterns, but is contingent upon a flood control reservoir on the Pembina River.

Municipal and industrial water supplies are limited in the basin. Sources are mostly from shallow ground water acquifers which have yield limits. Southern Manitoba is growing rapidly and communities adjacent to the border are looking for long-term and abundant water sources. A reservoir on the Pembina River at Walhalla could gravity feed and deliver water to the border for distribution to rural and municipal residents in the Province of Manitoba. Water from the Neche, North Dakota water plant is presently being delivered to Manitoba towns. Expansion to meet growing needs of these towns is inhibited by the periodic low flows in the Pembina River.

Current initiatives by the state water commission and county water management agencies in the upper basin have resulted in actions which will create a series of small impoundments, for example the Rush Lake Basin. These small holding areas will serve a dual purpose providing water habitat and a restraint on the spring run-off flowing into the Pembina River at a critical time in the annual snow melt cycle.

Canadian interests in the upper reaches of the basin have proposed to their government that water retention structures be emplaced so as to raise the levels of Rock, Pelican and Swan Lakes. Their objective is to improve fishery conditions, provide better water oriented recreation opportunities and alleviate minor flooding problems. Preliminary discussions with the proponents indicate that they would be receptive to the inclusion of operational structures and management practices that would respond to our needs for flood control and water level maintenance as it affects recreational use on a Pembilier Reservoir and downstream flow levels in the river.

Water oriented recreation facilities associated with a reservoir would alleviate the demand on present water recreation sites and encourage tourism thus enhancing base sector employment in this predominantly agricultural economy.

The community of Walhalla, through its Economic Development Office, has initiated a proposal to designate the gorge northwest of County Highway #55 as a "Wilderness Park"/wildlife area. It envisions limited vehicular access while providing walking trails, premitive campsites and identification of natural features unique to the area. The wildlife habitat and, thus the excellent hunting would be conserved. Longer term, a greenbelt of restored hardwood stands contiguous to the river between Walhalla and Pembina could be established using U.S. Department of Agriculture conservation acreage funds, further enhancing flood containment and animal habitats.

Congress recently authorized a three year study and appropriated two hundred thousand dollars for the first year to evaluate means of reducing flooding on the Red River. The Pembina River is the largest tributary draining into the Red River from North Dakota. It has contributed from 6 to 12% to peak Red River flows. Control of water in the tributary basins must be given high priority in this study. The plan as outlined in the foregoing could serve as a model for subsequent action on other tributaries in the Red River Basin.

A coordinated approach to basin water management on the Pembina River will enable us to have flood control with a much smaller dam. As a consequence we will have lower project costs, less environmental impact and finally components which will generate income to pay the local entity's share as required by the 1986 water resources legislation. Also included in this legislation is precedent for shared costs between federal agencies, local interests and Canadian Provinces.

In summary we believe there is an opportunity to develop a valid interdisciplinary basin plan to manage the water, wildlife and scenic resources to contain floods, foster economic development and preserve the area's ecology. With your committee's impetus we can demonstrate the essential cooperation between local, state and federal government that is mandated by congress.

Respectfully yours,

Leon F. Dubourt
Secretary

RICHLAND RURAL
WATER USERS

KINDRED, ND 58051
(701) 428-3139

February 26, 1987

Senator Quentin N. Burdick
Senate Office Building
Room 451
Washington, D.C. 20250

Dear Senator Burdick:

Thank you for inviting us to testify for the Water Resource Oversight Hearings. We would like to submit this written transcript for the record.

Richland Rural Water Users, Inc., has many major areas of concern in our immediate area. The people in rural Lidgerwood, Cayuga and Geneseo including the Milnor area do not have safe drinking water available to them. Other areas such as the city of Colfax and city of Christine are also in need of quality drinking. For these North Dakotans to receive quality water, federal aid must be made available to them.

Richland Rural Water Users, Inc., is a member of the North Dakota Rural Water Systems Association and we stand by and support the testimony submitted by Alfred Thompson for rural water growth in North Dakota. We also, as was testified by the President of Burleigh Rural Water Users, Inc., have rural areas next to cities where groups of individuals are in need of quality potable water.

Once again thank you for allowing us to be a part of the hearing. If we can help you with this program let us know.

Yours truly,

Elwood Johnson

Elwood Johnson
President

EJ:pm

Feb 7, 1987
Center N. Dak
(Box 103) 58530

Dear Sir

My property is a tract of River bottom located in Oliver Co. The N½ W½ NW¼ 14-141-81 + lot 5 with river front. This being a family homestead handed down to me.

The old Missouri has always been a problem for eroding the banks, and seems to have become worse since the Garrison Dam was built.

I worked from 1965 to 1983 for the Contractor building most of the pipe rock structures between Stanton N Dak + Fallon S. Dak. so I am familiar with their work.

I have tried to do some on my own land, but is just too much for any 1 person to handle.

The rock jetty protruding out into the river seems to do a lot better job than the bank riprap as the latter does nothing to catch the silt.

I am losing land every year and sure hope that there will be help in the near future to combat this problem.

My sincere thanks to your efforts with this meeting

Harry Hetter
Box 103
Center N Dak
Phone (794-8775)

If you wish to read any or all of this at the meeting you may do so.

United Power Association
1025 N. 3RD ST., BISMARCK, NORTH DAKOTA 58501 701-255-4162

February 25, 1987

Honorable Quentin N. Burdick
United States Senate
511 Hart Building
Washington, D.C. 20510

Dear Senator Burdick:

I was unable to be present at your recent hearings in Bismarck concerning bank stabilization on the Missouri River. I commend you for dealing with that subject.

Since I represent an organization with interest in two power plants on the Missouri River, I want to remind you and the Corps of Engineers that the deposit of the silt carried by the river can affect the water intake structures at those power plants. I would hope that bank stabilization efforts will be carried out in a manner that will minimize silt and sand deposits near power plant intakes.

Thank you for the opportunity to comment.

Sincerely,

Loren L. Stadig
ND Management Representative

LS/tj

— CITY OF VALLEY CITY

NORTH DAKOTA

P. O. Box 390
Zip Code 58072
Telephone 845-1700

February 5, 1987

Senator Quentin Burdick
P. O. Box 2057
Bismarck, ND 58502

Dear Senator Burdick:

I am in receipt of your letter of January 28, 1987, in which you are inviting comments on proposed Federal Water Projects in the State.

Of interest to the City of Valley City was the #3 Statement in the letter, "An Overview of the U.S. Army Corps of Enginners Projects (proposed, under construction, or in operation) in North Dakota."

Baldhill Dam, which was constructed in the late '40s, and which is located 10 miles northwest of Valley City, is due to undergo a safety modification program in the next two years. A portion of the plan by the U.S. Army Corps of Engineers calls for a local share of $640,000. The City of Valley City has bever been contacted to participate in the funding of the safety program, nor do we have the funds to support the program.

The proposed raising of Baldhill Dam five feet calls for a local share of approximately 2.9 million dollars. This amount is totally beyond the capability of the City to financially support the plan.

The City of Valley City generally supports both concepts---that of dam safety and the raising of Baldhill Dam five feet for flood protection.

We do not have the funds to support the plans financially.

Sincerely,

Dale Olson

Dale Olson
President
Board of City Commissioners

mh

CITY OF WEST FARGO

OFFICE OF THE MAYOR
WEST FARGO, NORTH DAKOTA 58078

FLORENZ BJORNSON

February 9, 1987

Senator Quentin N. Burdick
Chairman, Senate Environment and Public Works Committee

Dear Senator Burdick:

As an authorized project of the U.S. Army Corp of Engineers, Sheyenne Diversion is of prime importance to the 11,000 inhabitants of West Fargo, N. Dak.

This letter is to encourage early action by the U.S. Government for its formulated cost share of this project with its 13-1 benefit ratio. The City is also encouraging continued examination of the Maple River Dam to augment benefits of the diversion.

The part of the project which will remove the City from the flood plain is my immediate concern as Mayor. Sponsorship by the North Dakota State Water Commission and local leadership from S. E. Cass Water Resources District, puts the preliminary work in place to begin construction on the segment to divert a Sheyenne River flood around West Fargo. Since the forces of nature cannot be regimented to a time table, it is imperative that early action be taken - from our point of view.

I personally want to draw attention to the extensive examination by S.E. Cass to develop a fair spreading of local costs. Also, may I commend the U.S. Corps of Engineers for its sensitivity to the needs of the local people during the planning stages.

Examination of flooding in this area has a long history. Flooding in this area has a long history. Sheyenne Diversion is offering a hoped for end to both.

Thank you for the opportunity to have these concerns heard in a forum of the United States Senate.

Personal regards,

Florenz Bjornson, Mayor

WOLD LAW OFFICE

JAMES W. WOLD
Attorney at Law

RR2, BOX 49A, LUVERNE, NORTH DAKOTA 58056 (701) 769-2100

February 28, 1987

Honorable Quentin Burdick
Chairman, Senate Environment and Public Works Committee
United States Senate
Washington, D.C. 20510

RE: Bald Hill Dam Component of Sheyenne River Flood Control Project

Dear Senator Burdick,

I am informed that written testimony relative to the Sheyenne River Flood Control Project will be accepted until March 1, 1987.

It is respectfully requested that the material assembled and enclosed herewith be incorporated into the record of testimony with respect to the project.

The material enclosed is a chronology, in reverse order beginning with the most recent correspondence, of opposition to the five-foot raise of the Lake Ashtabula flood pool level, often referred to as the five-foot raise of the Bald Hill Dam. The essence of the opposition can be distilled by reading Exhibits 1 and 3.

Exhibits 6 and 7 may be useful as to suggesting legislation which would enable Soil Conservation Service to fund, or to provide partial assistance in funding, and to design and build dams of the type which we are suggesting be built on Ball Hill Creek, the largest tributary flowing into Lake Ashtabula. Exhibit 7 is one example of what one of the innovative SCS engineers envisions can be done at the grass roots level, which is beyond the comprehension of the Corps of Engineers.

Because of the continuing controversy, lack of hard data, and constantly changing cost figures by the Corps of Engineers, particularly with respect to the Bald Hill Dam component, and as to local cost-sharing figures, we urge that the entire Sheyenne Valley Flood Control Project be audited by the Government Accounting Office (GAO).

Sincerely yours,

James W. Wold

James W. Wold
Attorney for Association for the Preservation of the Sheyenne River Valley

---

Note: Only exhibits 2 and 3 are attached, the balance of the exhibits have been retained in committee files.

January 19, 1987

October 1, 1986

EXHIBIT 2

BALDHILL DAM FACT SHEET

The Baldhill Dam located on the Sheyenne River just north of Valley City in Barnes County, was constructed between 1947 and June 1950. The following data is presented on the existing structure and the proposed structure with a 5-foot raise for flood control:

	Existing	Proposed
ELEVATIONS		
Top of Dam	1278.5 msl	1283.5 msl
Spillway design pool	1273.2 msl	1278.0 msl
Design flood pool	1266.0 msl	1271.0 msl
Permanent pool	1266.0 msl	1266.0 msl
AREA		
Permanent pool	5,430 acres	5,430 acres
Flood pool	5,430 acres	6,200 acres
Federally-owned land	8,483 acres	11,390 acres
STORAGE		
Water Supply	67,800 acre-feet	68,300 acre-feet
Flood Control*	39,600 acre-feet	71,000 acre-feet
Total	68,600 acre-feet	100,000 acre-feet

* Includes 39,600 acre-feet of dual use flood control storage

Baldhill Dam was originally designed for water supply, pollution abatement, and flood control. At the normal pool elevation of 1266 mean sea level (msl), the 68,600 acre-feet of storage was allocated in the following manner:

Municipal water supply	38% or 26,068 acre-feet
Rural water supply	31% or 21,266 acre-feet
Pollution abatement	23% or 15,778 acre-feet
Flood control	8% or 5,480 acre-feet

Normally, the reservoir is only drawn down 1.5 feet to allow for spring runoff. During periods of high runoff, such as the spring of 1979, the reservoir pool is drawn down 9 feet to 1257 msl to provide 40,000 acre-feet of storage.

The reservoir is currently used for flood control, water supply, and recreation. Annual benefits amount to:

Flood damage reduction	$1,531,000	(34%)
Water Supply	1,622,000	(36%)
Recreation	1,361,000	(30%)
	$4,514,000	

Although Baldhill Dam is used for flood control (8%), a 100-year flood would still result in the following average annual damages:

	Residential	Commercial	Public	Total
Valley City	$1,829,240	$38,920	$77,840	$1,946,000
Lisbon	$ 289,820	$ 3,580	$64,400	$ 357,800
				$2,038,520

A 100-year flood would cause one-time damages (based on existing conditions) of $11.0 million. These damages are based on a flow rate of 9,400 cubic feet per second (cfs). This damage figure only represents the amount of damage to residential buildings and contents, it does not represent any damages to public roads, bridges or utilities.

PROPOSED 5-FOOT RAISE OF BALDHILL DAM FOR FLOOD CONTROL

A 5-foot raise of Baldhill Dam for flood control would provide an additional 31,000 acre-feet of flood storage and would reduce the 100-year flood event in Valley City from 9,400 cfs to 7,100 cfs thereby reducing damages for the 100-year event to $9.2 million. This represents a reduction in damages amounting to $1.8 million. About 127 structures would

not be damaged in Valley City alone during this event. Presently, there ar about 570 structures in the 100-year floodplain at Valley City and 278 structures in the 100-year floodplain in Lisbon.

The major impacts of a 5-foot raise for flood control will include the acquisition and temporary flooding of approximately 3,000 acres of land; and the possible relocation of 100 cabins, five to six farmsteads, and two church camps.

The U.S. Army Corps of Engineers will be upgrading Baldhill Dam according to current Dam Safety Program standards. The local cost share would be $640,000 to meet the dam safety standards. Should flood control be part of the upgrade then the local share would be ~~$2.9~~ 4.58 million plus the $640,000 for a total of ~~$3.5~~ 6.22 million if done in conjunction with the dam safety upgrade. If done at a later date, the cost of providing this amount of flood protection would exceed $13 million and the local share would then be ~~$4~~ 5.23 million. This would represent a cost savings of ~~$500,000~~ 100,000 for the project sponsor if completed with the Dam Safety project.

Total cost $11.6 x 10^6
5% $580,000
5 x 10^6 for flood
$5.58 x 10^6 Today
Add $100,000 to do dam safety later.

PROPOSED DAM ON BALDHILL CREEK

The COE evaluated the proposed Baldhill Creek Dam and found the dam is equivalent to a 2.3-foot raise of the flood control pool of Baldhill Dam. Therefore, Baldhill Creek Dam and a 2.3-foot raise of Baldhill Dam is equivalent to a 5-foot raise of Baldhill Dam. The cost of the proposed dam at the Beaver Creek site is approximately $10 million. It is likely that this cost would be a non-federal responsibility.

WOLD LAW OFFICE EXHIBIT 3

JAMES W. WOLD
Attorney at Law

RR2, BOX 49A, LUVERNE, NORTH DAKOTA 58056 (701) 769-2100

September 5, 1986

Honorable George A. Sinner
Chairman, State Water Commission
State Capitol Bldg.
Bismarck, ND 58505

RE: Lake Ashtabula/Bald Hill Dam Issue

Dear Governor Sinner:

On behalf of the Association for the Preservation of the Sheyenne River Valley, I would like to present a summary of the Association's views which were presented at the meeting of the State Water Commission held in Valley City on May 28, 1986. I will also take the opportunity to expand somewhat on some of those views.

The Corps of Engineers' proposal to perform the work necessary to raise the level of Lake Ashtabula by five feet in conjunction with the dam safety modifications, all at a savings of $2.2 million if done at the same time, has imposed a degree of urgency upon the decision making process. Whether the decision is made under the press of time or after due deliberation, it is important that both sides have the opportunity to express their views. The hearing which was held in Cooperstown on February 28, 1984, was one such opportunity for citizens to express their views to the State Water Commission. The hearing this past May 28th in Valley City was another such opportunity, and the Association is appreciative of those opportunities.

On balance, the views spoken in both those hearings express overwhelming opposition to the five foot raise of the Lake Ashtabula level. There is a complete transcript of the February 28, 1984, hearing in your files. The transcript contains public testimony from 47 different individuals. There are, in addition, 34 exhibits as a part of the transcript. With the exception of possibly one person, the entire testimony in that hearing was anti-five foot raise. If I recall correctly, there were also a significant number of letters from individuals and various organizations which were forwarded to the State Water Commission at the time of that hearing.

As I indicated in my statement at the hearing on May 28th, nothing has changed as concerns upstream opposition to the five foot raise. Additionally, we filed with the Commission on May 28th current petitions carrying the names of hundreds of individuals, many of whom are residents of Barnes County and the Valley City area, all of whom expressed their opposition to the five foot raise and requested that the State Water Commission look at other alternatives.

There appear to be three dominant factors bearing on the issue and the decision facing the State Water Commission:

1. The economics of the five foot raise.
2. Cost sharing.
3. Alternatives to the five foot raise.

I.
Economics of Five Foot Raise

The Corps' figures indicate that the cost of the five foot raise is $9.1 million. See Exhibit "A". The same figure is also shown in a letter from the Corps of Engineers to Congressman Dorgan, a copy of which is attached and marked Exhibit "B". Other figures such as Senator Burdick's remarks in the Congressional Record of May 15, 1985 reflect a cost of $11.1 million. See Exhibit "C". The Corps used a figure of $11.6 million at the May 28th hearing.

The Corps' documentation shows that in Valley City a total of 625 single family residences and 67 commercial buildings would be affected by a 100-year flood. See Exhibit "D". Their figures also show that in a 100-year flood Valley City would experience damages in the amount of $25.9 million without the five-foot raise. With the five-foot raise there would be a relatively slight benefit in the amount of $4.8 million, i.e., an 18.5% reduction in the amount of damage. See Exhibit "E". For floods of lesser magnitude the benefits would be greater.

Using the Corps' figures in Table 20 and from the analysis thereof tabulated at Exhibit "F", the five foot raise of the Bald Hill Dam represents a total cost of 26.5 percent of the total Sheyenne Valley Flood Control Project but it contributes only 3.5 percent to the total net benefits of the entire project.

In view of such a minimal return in net benefits for the cost involved, can the State of North Dakota justify its approval of that portion of the project which will as a result impose great cost sharing burdens on the citizens?

II.
Cost Sharing

One of the major problems has been to attempt to define precisely what the cost sharing burden on the citizens will be. By reference to several documents and to information provided by a Congressional staffer, several conclusions begin to emerge:

1. Senator Burdick's comments in the Congressional Record (see Exhibit "C") indicate that "Non-federal interests will cover approximately 45 percent of the project which has a 6 to 7 cost benefit ratio."

2. The letter from the Corps of Engineers to Congressman Dorgan (Exhibit "B") reflects the Department of the Army's position that the minimum non-federal share of construction costs would be 35 percent. There is a qualifying statement, however, which indicates that that figure could be exceeded. The letter also notes that the costs of operation, maintenance and replacement will also fall on the local population, i.e. a "non-federal responsibility".

3. Various press reports reflect estimated costs of local cost sharing to range from 25 percent to 44 percent. For example, West Fargo reportedly will be obligated to pay $7.6 million out of total local costs of $17.3 million, or 44 percent. See Forum article, July 17, 1985, attached as Exhibit "G", and Forum article, December 6, 1985, attached as Exhibit "H".

4. In my conversation with Paulette Hanson, Senator Burdick's staff assis-

tant on this project, on May 27, 1986, she stated that although the issue was still open in conference, she expected that the local cost share would range from 25 to 35 percent. With local shares paid in advance, it would be 25 percent. If the local share is financed by the federal government it will be 35 percent. In addition, the local sponsor will have to have to bear part of the estimated cost of $5 million for the purchase of lands, rights-of-way and easements. And it should be kept in mind that in addition to these costs the local taxpayer is also going to be obligated to pay for the operation, maintenance and replacement costs of the project (Exhibit"B"). The provisions for local cost-sharing are set forth in greater detail in Section 701 of Title VII of Senate Bill 1567.

In light of all such varying information, and in the absence of any final federal policy on cost sharing, I think it should be very difficult for the State Water Commission to vote for a project such as the five-foot raise--or even the inclusion of the five-foot raise with the dam safety modifications--without knowing the extent of the cost sharing burden to which it is obligating the local citizens.

III.
Alternatives

Presumably one criterion of an acceptable alternative or alternatives to the five-foot raise of Lake Ashtabule would be that they provide an equivalent 30,000 acre-feet of flood control storage, which the amount of benefit that would be provided by the five-foot raise. Two such alternatives are available through 1) Revised Management of the Bald Hill Dam, and 2) a retention dam on the Bald Hill Creek tributary.

Revised Management of Bald Hill Dam

Throughout the initial stages of development of the Sheyenne River Flood Control plan, the Corps of Engineers included as one of its viable alternatives the concept known as "Revised Management" of Bald Hill Dam.

The table at Exhibit "I" shows that Revised Management of Bald Hill Dam will provide 14,000 acre-feet of flood control storage at no cost. It provides flood control benefits to Valley City, and 2nd peak benefits to the downstream areas, including West Fargo.

The printed material provided to the members of the State Water Commission at the hearing on May 28th hearing included press clippings which reflected Senator Andrews' opposition to the five-foot raise, as well as his position that fresh water can ultimately be guaranteed to refill Lake Ashtabula through the Garrison Diversion project. One of the prior major concerns as to Revised Management has been the fear that an excessive lowering of lake levels could be damaging to the fish supply, as well as jeopardizing a guaranteed supply of water to the Fargo area. That concern can now be alleviated by factoring in for consideration the guaranteed supply of fresh water through the Garrison Diversion project. The possibility of excessive drawdown of the lake level was addressed at the hearing in Cooperstown on February 28, 1984. It was the only objection the Corps of Engineers expressed with regard to the Revised Management concept, and those objections can now be met. See pages 191-193 of the transcript of the February 28th hearing.

Retention Dams

You may recall that Keith Monson in his testimony in Valley City on May 28th stated that in 1979 one half of the water pouring through Valley City came down Bald Hill Creek. Jeff Volk, of Moore Engineering, stated at the same hearing that Bald Hill Creek has approximately 25% of the drainage area into Lake Ashtabula, and in his opinion a 60 foot high embankment on Bald Hill Creek would provide 15-20,000 acre-feet of storage, and would yield the same equivalent flood control protection as a 1½-2 foot raise of the level of Lake Ashtabula. Mr. Volk indicated that the State Water Commission has a copy of his report on this matter.

* * * * *

The above two alternatives, by themselves, can provide the equivalent flood control storage of the proposed five-foot raise. Additional retention dams planned over time on selected tributaries would further increase the flood control storage capability. The North Dakota Water Users Association in its current statement of Long Term Objectives and 1985 Resolutions supports our Association's position on these issues. See Exhibit "J".

RECOMMENDATIONS

The recommendations of the Association are as follows:

1. That the State Water Commission not sponsor the five-foot raise component for such time at least until the following can be accomplished:

   a. Design, approve, and fund the construction of at least one suitable retention dam, with priority given to Bald Hill Creek.

   b. Obtain agreement from the Corps of Engineers to implement the concept of Revised Management at the earliest practical date.

   c. Determine precisely the local costs which would be involved in cost sharing for construction of the five-foot raise, to include the dam safety modifications, as well as the cost of initial acquisition of easements and rights-of-way, and for on-going annual costs of operations, maintenance and replacement.

2. There should be a continuing study by the State Water Commission, in cooperation with the Joint Water Boards, to identify potential sites for retention dams, and to establish priorities and plans for future construction.

3. The next priority for the Resource Trust Fund after completion of the Southwest Pipeline should be in the eastern part of the state, with strong consideration to giving top priority to construction of a retention dam on Bald Hill Creek.

Finally we request that we be given advance notice whenever these issues are placed on the agenda of State Water Commission meetings so that we may have

representation present.

Sincerely yours,

James W. Wold
Attorney for the Association for the Preservation of the Sheyenne River Valley

HWW:hsv

cc: State Engineer

Exhibit "A"

Table 20 - Summary of economic effects of selected plan

Component	First cost Federal[1]	First cost Non-Federal[1]	First cost Total	Average annual costs[2]	Average annual benefits[3]	Benefit cost ratio
Levees and diversion at West Fargo/Riverside	$9,100,000	$8,100,000[4]	$17,200,000	$1,529,900	$19,595,000[7]	12.8
Flood diversion channel from Horace to West Fargo	3,975,000	4,125,000[4]	8,100,000	706,300	1,383,000	2.0
Raise of Baldhill Dam	9,100,000[4][5]	--	9,100,000	767,700[5]	1,453,600[6]	1.9
Total	22,175,000	12,225,000	34,400,000	3,003,900	22,431,600[7]	7.5

(1) Apportionment of costs to Federal and non-Federal interests were based on traditional cost-sharing policies.

(2) Includes annual operation and maintenance costs of $46,000 for levees and diversions at West Fargo, $25,000 for the Horace to West Fargo diversion, and $10,000 additional at Baldhill Dam.

(3) Benefit estimates are separated by component using the assumption that the levees and diversion at West Fargo would be first in-place, the flood diversion channel from Horace to West Fargo would be second in-place, and the raise of Baldhill Dam would be third in-place.

(4) Costs of lands, easements, and rights-of-way are included as a portion of this cost.

(5) Includes the costs allocated to flood control only. The total first cost of construction to current criteria for a 5-foot raise of Baldhill Dam is estimated at $31,100,000, of which $22,000,000 is apportioned to Dam Safety Assurance.

(6) Includes only readily quantifiable benefits from Baldhill Dam to about river mile 125 near Anselm. Additional benefits are creditable in the reach from river mile 125 to West Fargo; however, these were not quantified.

(7) An additional $46,500 annual savings in flood insurance administration costs at West Fargo and Riverside is creditable as benefits but is not included here.

Source: "General Reevaluation and Environmental Impact Statement for Flood Control and Related Purposes, Sheyenne River," US Army Corps of Engineers, August 1982, Revised January 1984

Exhibit "B"

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314

23 FEB 1984

REPLY TO ATTENTION OF:
DAEN-CWP-C

Honorable Byron L. Dorgan
House of Representatives
Washington, D. C. 20515

Dear Mr. Dorgan:

This is in reply to the recent verbal inquiry from your Administrative Assistant, Ms. Barbara Rohde, concerning our response to points raised by your constituent, Mr. James Wold, in his letter to you dated 10 October 1983. Mr. Wold's concerns relate to cost estimates and cost sharing for the proposed Cheyenne River, North Dakota, project.

The modifications being considered at Baldhill Dam consist of work under two different authorities: (1) the upgrading of Baldhill Dam under the Dam Safety Assurance Program, and (2) the addition of flood control storage by raising Baldhill Dam through modification of the authorized project. For evaluation purposes, the upgrading for safety reasons is assumed to occur regardless of whether or not the dam is raised for flood control and, as such, it would be appropriately considered as "first-in-place" for cost allocation between purposes. We also assumed that: (1) if the dam were modified to raise the flood control pool, the dam safety modifications would proceed concurrently, and (2) the difference between the cost of the total project of upgrading and raise for flood control, and the cost of the upgrading only, would be allocated to the flood control purpose.

The cost estimates for upgrading Baldhill Dam have been refined since distribution of the draft report. In the draft General Design Memorandum, Phase I, and draft Environmental Impact Statement dated January 1982, the costs of upgrading for dam safety (October 1981 price levels) were estimated for two conditions -- one at $15,200,000 and one at $22,000,000. Also, the cost of the total combined project of upgrading and raise was estimated at $32,000,000 (October 1981 price levels). Therefore, using the estimates presented in the draft report, the cost allocated to the raise of the dam for flood control would have been either $16,800,000 or $10,000,000, depending on which cost estimate for dam safety was used.

Additional studies for the upgrading work for dam safety have shown that the lower cost estimate is unrealistic and the higher cost estimate of $22,000,000 (October 1981 price levels) is the best estimate. Therefore, the higher estimate is being used. In addition, the cost estimate for the total combined project has been revised to $31,100,000. This revision results in a cost of $9,100,000 allocated to the raise of the Baldhill Dam for flood control.

Regarding cost sharing, it is true that cost-sharing and financing arrangements for this project have not been finalized. It is the Department of the Army's position, for flood control, that the minimum non-Federal share of construction costs would be 35 percent. However, the traditional requirements specified by the 1936 Flood Control Act would be applicable where those requirements exceed the 35 percent minimum. Operation, maintenance, and replacement costs would be a non-Federal responsibility.

For your additional information, the Board of Engineers for Rivers and Harbors recently acted favorably on its review of the Sheyenne River proposed project. We will soon distribute the proposed report of the Chief of Engineers to the State and Federal agencies for the required 90 day review. Subsequent to the review, we will formulate the final report of the Chief of Engineers for transmittal to Congress.

I am enclosing a copy of a public meeting announcement on the Sheyenne River, North Dakota. Mr. Wold may wish to attend and speak with the project managers, who will be able to respond further to his concerns.

Sincerely,

Charles J. Myers, III

for Roger F. Yankoupe
Colonel, Corps of Engineers
Assistant Director of Civil Works,
Upper Mississippi Basin & Great Lakes

Enclosure

By Mr. BURDICK (for himself and Mr. ANDREWS):

S. 1139. A bill to authorize construction of a combined Sheyenne and Maple River flood control project, to the Committee on Environment and Public Works.

SHEYENNE AND MAPLE RIVER FLOOD CONTROL PROJECT

Mr. BURDICK. Mr. President, I rise today to introduce for myself and my colleague, Mr. ANDREWS, a combined Sheyenne and Maple River flood control project.

The Sheyenne and Maple River flood control projects are the result of Federal, State, and local efforts to develop acceptable alternatives to the Kindred Lake project which was authorized in the 1970 Flood Control Act. The Army Corps of Engineers recommends that Congress deauthorize Kindred Lake and authorize the Sheyenne flood control project in its place. The project consists of levees and diversion channels at West Fargo and Riverside; a flood diversion channel from Horace to West Fargo; and raising the Lake Ashtabula reservoir pool level 5 feet behind the existing Baldhill Dam.

The Federal cost is estimated at $26.2 million with $15.1 million for the levees and channels and the remaining $11.1 million for raising the pool reservoir. Non-Federal interests will cover approximately 45 percent of the project which has a 6- to 7-cost benefit ratio.

The public has voiced considerable objection to raising the Lake Ashtabula pool reservoir. The State and the corps have agreed to separate the pool reservoir portion of the project, and proceed with the levees and channels. According to the corps, project separation will not affect the integrity of the urban flood protection design. A final decision on the pool reservoir is not expected until 1990. The State and the Army corps have agreed to review alternative plans to be developed and presented by the Upper Sheyenne Joint Water Resources District. The district supports authorization of the entire project; however, it reserves the right to object to raising the pool reservoir. As a safeguard to the compromise, I will request appropriate report language which will prohibit the use of corps planning funds for raising the reservoir pool until the State of North Dakota agrees to sponsor that portion of the project.

We intend that the final decision on the reservoir pool should not delay the Chief of Engineers plan to modify the Baldhill Dam for dam safety considerations. The modifications will address only the current deficiencies of an inadequate spillway capacity, and the stability of the embankment, which has shown distress.

Besides the corps-recommended flood control project on the Sheyenne, this bill includes the Maple River project. The Maple River empties into the Sheyenne River 3 miles north of West Fargo. From this point, the two flow north and east to join the Red River 5 miles northeast of Harwood.

The corps, the State water commission, and local water resource districts have analyzed the Maple River Watershed. It is clear that a dam on the main stream of the Maple River north of Enderlin would be of significant benefit in reducing flood damages on the lower Sheyenne. The corps has not been able to come up with the cost/benefit ratio required to justify Federal participation. A corps project requires each individual component of a plan to stand on its own before it can be included in an overall flood control project.

In the case of the Maple River project, the corps did not consider the economic impact of agricultural losses. This is indeed unfortunate. The Federal Government must consider the major reductions in flood levels or flood damages on agricultural lands. In 1979, the President twice announced disaster declarations for eastern North Dakota. The spring flood was declared on May 24, the summer flood on July 11. Losses to both public and private properties in the eastern part of the State were estimated at $550 million. The greatest losses occurred to corps destroyed in the summer flood.

The 1979 floods had the following impact on Cass County, the primary beneficiary from the proposed Sheyenne and Maple River project.

Agricultural Stabilization and Conservation Service (ASCS) annual report showed a $1.9 million disaster payment for crop damage estimated at $62,029,385 over 420,400 acreas.

North Dakota crop and livestock reporting service statistics showed 169,000 corp acres abandoned due to flooding.

Losses to public property, roads, bridges, and so forth, were estimated at $2.5 million. The State disaster emergency services distributed $1,740,491.45 to Cass County political subdivisions for emergency repair.

Other government funding included an estimated $280,000 by the corps for flood-fighting activities; $40 million in emergency loans through the Farmers Home Administration and Small Business Administration; $250,000 by the U.S. Department of Agriculture for emergency conservation measures; and $200,000 for mosquito spraying through the Federal Emergency Management Agency.

Ring dikes were built following the flood to protect urban property: $75,000 for the historic village of Bunanzaville; $1 million corps project for Argusville City; and $45,000 in Raymond Township to protect 80 acres.

The communities and farmers along the Sheyenne and Maple Rivers are interested in a 100-year flood protection project. It is estimated that a flood in this area could cause $700 million in damages, with the greatest impact in the area where the Sheyenne and Maple Rivers flow together to join the Red River. In light of the potential damage, and the role of the Federal Government in helping communities and States recover from flood disasters, I think that $15 million spent on a dam now would be a sound and wise investment.

I would ask unanimous consent that the bill be printed in full following my remarks.

There being no objection, the bill was ordered to be printed in the RECORD, as follows:

S. 1139

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to proceed with the planning, designing, engineering, and construction of the plan for flood protection and related purposes on the Sheyenne River, North Dakota, as described and recommended in the Report of the Chief of Engineers dated August 22, 1984, at an estimated federal cost of $26,200,000 (October 1984 price levels), and to proceed with the planning, design and construction, at full federal expense, of a dam and a reservoir of about 25,000 acre-feet of storage in the vicinity of Enderlin, North Dakota, on the Maple River to provide the downstream communities and adjacent environs protection against flooding at an estimated cost of $15,000,000 (October 1984 price levels).

Sec. 2. Congress finds that the benefits attributable to the flood control measures provided by the Maple River project exceed the cost of such measures and further economic analysis is not required.

Sec. 3. The plan of the Chief of Engineers to modify the Baldhill Dam (authorized by Public Law 76-534) for dam safety considerations shall not preclude implementation of those components of the Sheyenne River, North Dakota, project not dependent on such safety modifications.

Exhibit "D"

EVALUATION OF FLOOD DAMAGES - PRESENT CONDITIONS

URBAN DAMAGES

In 1977, about 2,600 single-family residences were subject to flooding from the 100-year flood in the lower Sheyenne River basin (see table G-2). About 158 commercial buildings, 137 apartment units, and 44 public structures are also subject to flooding. The number of single-family residences in Valley City subject to flooding from the 100-year flood is about one-fourth the total in the lower Sheyenne River valley. A detailed breakdown by number and type of structures in the 100-year floodplain is shown in the future growth section.

Table G-2 - Structures subject to 100-year flooding - lower Sheyenne River valley, Valley City, and Lisbon, 1977

Location	Single-family residences	Multiple-family units	Commercial	Public	Total
Lower Sheyenne River valley	2,636	137	158	44	2,975
Valley City	625	-	67	0	692
Lisbon	161	-	3	2	166
Total	3,422	137	228	46	3,833

Estimates of residential flood damages were based on inspection of residences in the floodplain. The approximate market value of each residence inspected, ground and first-floor elevations, and depths of flooding without emergency protective measures were determined. The without emergency protective measures condition was assumed to be the base condition. While past floods have been fought with varying degrees of success in many areas (see pages M-5 through M-7), the questionable structural integrity of the emergency levees as discussed in Appendix K makes the dependability of the levees uncertain. Estimates of flood damages to residences and contents were obtained from the standardized depth-damage tables developed in the St. Paul District. Field inspection of their appropriateness for the study area was done for a limited sample in West Fargo only (see sensitivity discussion on page page G-

Source: Corps of Engineers, Technical Appendixes Volume 2, of the General Design Memorandum Phase I and Environmental Impact Statement, Jan 82 Appendix G, page G-12

Table 17 - Effectiveness of selected plan in reducing flood damages[1][2]

Damage location	Average annual conditions			2-percent chance flood			1-percent chance flood			Standard project flood			Magnitude of flood for which emergency measures would be needed to supplement plan (3)
	Damages without plan	Benefits with plan	Percent damages reduced	Damages without plan	Benefits with plan	Percent damages reduced	Damages without plan	Benefits with plan	Percent damages reduced	Damages without plan	Benefits with plan	Percent damages reduced	
Urban													
Valley City	$1,963,600	$1,790,000	66.4	$ 8,700,000	$5,600,000	83	$ 25,900,000	$4,800,000	18.5	$29,000,000	0	0	3.0
Lisbon	376,700	110,000	29.2	1,627,000	167,000	10	4,172,000	none	--	6,884,000	0	0	11.5
Horace	492,600	435,000	89.1	1,660,000	1,660,000	100	1,660,000	none	--	1,660,000	0	0	2.0
West Fargo/Riverside	19,811,800	19,551,000	98.7	59,973,000	59,973,000	100	65,709,000	65,709,000	100	66,838,000	166,838,000	100	SPF
Harwood	473,800	--	--	3,851,000	0	0	7,712,000	0	0	3,650,000	0	0	11
Other	991,100	--	--	2,936,000	0	0	4,300,000	0	0	5,172,000	0	0	11
Subtotal	23,691,600	21,390,000	90.3	76,727,000	67,380,000	--	81,581,000	70,509,000	--	115,484,000	66,838,000	--	--
Rural residential[4]													
Kindred-Horace	1,054,500	--	--	4,569,000	--	--	5,215,000	--	--	5,789,000	--	--	26
Horace-West Fargo	1,032,200	911,000	88.3	3,911,000	3,911,000	100	4,302,000	none	--	4,407,000	0	0	2
West Fargo-Mouth	1,021,400	--	--	7,451,000	--	--	9,556,000	--	--	10,900,000	--	--	25
Other	--	--	--	--	--	--	--	--	--	--	--	--	--
Subtotal	3,908,100	911,000	23.3	15,931,000	3,911,000	--	19,071,000	--	--	21,096,000	--	--	--
Agricultural													
Kindred-West Fargo	181,600	30,000	16.5	527,000	187,000	35	1,533,000	0	0	2,213,000	0	0	40
West Fargo-Mouth	871,400	41,000	4.7	3,842,000	179,000	4.6	4,837,000	166,000	3.4	5,012,000	179,000	3.6	61
Other	88,400	11,600	13.1	121,000	37,000	11.5	315,000	0	0	772,000	0	0	32
Subtotal	1,141,400	82,600	7.2	4,485,000	158,000	--	6,683,000	166,000	--	8,055,000	179,000	--	--
Transportation	196,100	48,000	24.5	992,000	414,000	41.8	1,247,000	242,000	19.4	1,138,000	9,000	0.8	--
Total	28,939,200	22,431,600	77.5	98,155,000	72,063,000	73.4	108,780,000	70,917,000	65.2	146,111,000	69,026,000	47.2	--

[1] October 1981 prices, 7 5/8-percent interest. Indexes are the same as those shown in table G-25.

[2] Based only on flood damage reductions provided by the raise of Baldhill Dam, levees and diversion at West Fargo/Riverside, and flood diversion from Horace to West Fargo. Benefits and effectiveness of other components are not included in this table. Does not include all benefits attributable to the raises of Baldhill Dam. Additional benefits downstream at Kindred could be quantified and incorporated.

[3] Expressed in percent chance frequency of occurrence.

[4] Includes only those areas labeled "somerhon".

Source: US Army Corps of Engineers, "General Reevaluation and Environmental Impact Statement for Flood Control and Related Purposes, Sheyenne River," August 1982, revised January 1984

Exhibit "E"

Exhibit "F"

BENEFITS OF BALD HILL DAM

Source Documents: General Reevaluation and Environmental Impact Statement, U.S. Army Corps of Engineers, Table 20, page 104, August 1982, revised January 1984.

Definition: "Total project" for purposes herein consists of the following components: levees and diversion at West Fargo/Riverside, flood diversion channel from Horace to West Fargo, and 5' raise of Bald Hill Dam (BHD).

Total average annual benefits	$22,431,600.00
Total average annual costs	$ 3,003,900.00
Average annual net benefits	$19,427,700.00

Total average annual benefits of BHD	$1,453,600.00
Total average annual cost of BHD	$ 767,700.00
Average annual net benefits of BHD	$ 685,900.00

Contribution of BHD to total net benefits: 3.5%

Total project cost (1981 figures)	$34,400,000.00
Cost of BHD (5' raise for flood control)	$ 9,100,000.00

BHD as a percentage of total costs: 26.5%

Water plan affecting N.D. advances

By Ellen Crawford
STAFF WRITER

The U.S. Senate Environment and Public Works Committee Tuesday passed an omnibus water policy and projects bill which includes funding for the proposed Sheyenne River flood control project in West Fargo and Riverside and a dam on the Maple River near Enderlin, N.D.

The bill is the first significant water bill since 1970, according to Sen. Quentin Burdick, D-N.D., a member of the committee.

Included in the $13 billion measure is $55.4 million for the Sheyenne-Maple River flood control package.

The Sheyenne River flood control portion of the proposal consists of levees and a channel to divert the river around West Fargo and Riverside and a diversion channel from Horace, N.D., to West Fargo.

Burdick said the Sheyenne-Maple River package is the result of federal, state and local efforts to develop acceptable alternatives to the Kindred Dam project.

The U.S. Army Corps of Engineers recommended a dam be built on the Sheyenne River near Kindred, N.D., after studying flooding in the lower Sheyenne River basin in the 1960s. Congress authorized the work in 1970.

The Corps and a citizens advisory committee began looking for alternatives when many residents in eastern North Dakota objected to the proposed dam. The levee and diversion plan is the Corps' recommended replacement for the Kindred Dam project.

Burdick said he added the Maple River dam to the package to provide rural flood protection. The Sheyenne River portion only provides protection for urban areas, he said.

Cass County is the primary beneficiary of the proposed Sheyenne-Maple River project, although other parts of southeastern North Dakota and west central Minnesota will receive some benefit, the senator said.

Burdick expects the bill to come before the full Senate in mid-September.

The bill approved Tuesday would require local sponsors to provide between 25 and 35 percent of the project's costs.

Under that formula, local sponsors of the Sheyenne-Maple River project would need to come up with between $13.85 million and $19.39 million. That amount would include any land, easements or rights of way.

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Exhibit "G"

Corps: W. Fargo needs funding plan

By Carol Mahnke
STAFF WRITER

Local officials were encouraged to begin developing plans for funding their share of a $24 million project to divert floodwater from the Sheyenne River around Horace and West Fargo at a meeting of the Southeast Cass Water Management District Thursday.

Robert Penniman, project manager for the U.S. Army Corps of Engineers, said West Fargo would be responsible for an estimated $7.6 million of the $17.3 million West Fargo diversion. The local share for the $6.7 million Horace portion of the project would be about $2 million.

Most of West Fargo's costs would be for bridges at Interstate 94, U.S. Highway 10, 12th Avenue North and Cass County Road 17, he said.

The total local cost for the combined project would be $9.6 million or about 40 percent of the project cost, Penniman said.

Congress is considering changing the guidelines for federal projects and may set a maximum local participation rate of 30 percent.

The local cost could be as little as $7.2 million or as much as $10.8 million, depending on legislation before Congress, Penniman said.

The Horace diversion would divert floodwater from the Sheyenne River at a point southwest of the city of Horace and would carry the water north to Drain 21.

The West Fargo diversion would begin south of I-94, connect with the Horace diversion at Drain 21 and carry water along the south side of the Interstate to the west side of the Red River Valley Fairgrounds.

The floodwater would be carried north of the railroad tracks and would then flow east almost to Cass County Road 19 where it would turn north, cross 12th Avenue North and connect with Drain 21 and the Sheyenne River.

Penniman said dikes on the east side of the diversion would be higher than those on the west side. That concerned some people who live on the west side of the proposed project.

"What's to be done to protect farmsteads to the west side of the diversion?" asked Tom Beaton. "Will there be ring dikes, or do we just buy a boat?"

The project would be constructed to protect West Fargo from the most serious flood likely to occur within 100 years, Penniman explained.

"But we want to make sure that if it fails, it fails to the west."

Penniman noted that the diversion channel will be 20 feet deep and should not increase the severity of flooding west of the project. The impact of the project on land to the west has not yet been studied, he said.

The North Dakota Water Commission has agreed to sponsor the diversion project but is not likely to provide extensive funding, Penniman said.

State Sen. Clayton Lodoen, who also is mayor of West Fargo, said funding for the diversion project would be considered by the Legislature if the state water commission sponsors it — but not if it were proposed by an individual senator or representative.

Most of West Fargo's costs for the project will have to be assessed to taxpayers, Corps officials indicated.

Funding the Horace portion of the project may be more difficult, according to the Corps, because the benefitted land has a lower valuation than West Fargo's.

And a $15 million dam on the Maple River near Enderlin to protect residents of the Mapleton area from flooding might be even more difficult to fund, based on current federal-local cost sharing guidelines, Corps officials said.

The Maple River dam is not included in plans for the West Fargo and Horace diversion.

But plans to increase the capacity of Baldhill Dam near Valley City, N.D., are part of the West Fargo-Horace flood control project.

Penniman said the Baldhill portion of the project is still "five years off," though plans for Baldhill were authorized by the same legislation which set the diversion project in motion.

If Congress approves final authorization and appropriates funds for the diversion project soon, Penniman said construction could begin in 1988.

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Exhibit "H"

TABLE F-13

SUMMARY OF PLAN D-2

COMPONENTS OF PLAN D-2 / DATA PARAMETERS	LEVEES AND DIVERSION AT WEST FARGO (RM 20 to RM 24)	DIVERSION FROM HORACE TO WEST FARGO (RM 42 to RM 20)	REVISED MANAGEMENT OF BALDHILL DAM	RELOCATION OF PERIODICALLY FLOODED RESIDENCES AT VALLEY CITY	RING LEVEES AT FARMSTEADS AND RESIDENCES FROM DIVERSION TO HORACE AND FARGO-WEST FARGO TO DIVERSION	TOTAL
• PERTINENT DATA:						
Flood Control Storage (acre-feet)	—	—	14,000	—	—	BALDHILL: 14,000
Design Discharge (cfs) [1]	3400	1700	2,500	—	—	—
Level of Protection [1]	1%	—	—	10% (A)	1%	—
• ECONOMICS:						
COSTS						
First Cost ($ million)	$14 to $17	$4 to $7	—	$3 to $45	$3 to $11	$24 to $39.5
Annualized Cost ($1000)	$1,100	$400	—	$280	$500	$2280
BENEFITS						
Flood Control ($1000)						
West Fargo	$2,200	—	YES (2nd PEAK)	—	—	$2,200
Valley City	—	—	YES	$240	—	$270
Agricultural	—	$35	YES (2nd PEAK)	—	—	$40
Other - downstream of West Fargo	—	—	YES (2nd PEAK)	—	YES	$1030
Other - upstream of West Fargo	—	$585	YES (2nd PEAK)	—	YES	
Other - (see note)	—	—	—	—	—	—
SUBTOTAL - Flood Control	$2,200	$620	(NOT DERIVABLE)	$240	PROBABLY > $500	$3600
Potential for other types of Benefit	RECREATION	—	—	—	—	RECREATION
TOTAL BENEFITS ($1000)	$2,200	$620	—	$240	—	$3600
B/C RATIO	2.0	1.5	—	0.9	PROBABLY > 1.0	1.6
NET BENEFITS ($1000) [2]	$1,100	$220	—	$ -40	—	$1320
• ENVIRONMENTAL EFFECTS:						
Woodlands Affected (acres)	2	2	—	—	[4]	4 (0.01%)
Wetlands Affected (acres) [3]	18 (.1%)	0	[5]	—	[4]	18 (.1%)
Grasslands Affected (acres) [3]	54 (0.06%)	32 (0.04%)	—	—	[4]	86 (.1%)
Annualized Habitat Units Lost	1.5	1.5	[5]	—	[4]	3
Mitigation Lands Required (acres)	5	5	—	—	[4]	10
• SOCIAL EFFECTS:						
Relocations (farmsteads, residences, etc)	5	0	—	87	—	92
Lands Required (acres)	250	50	—	10	[4]	350
• FLOOD DAMAGE REDUCTION EFF. [6]	35%	10%	(NOT DERIVABLE)	4%	8%	57%

NOTES:

[1] Design Flow in Cubic Ft. Per Second. No Maximum Release From Reservoir During The Design Flood In Case Flow Per Second.

[2] Reservoir To Be Released Would Have Fully Filled Upstream Channel By Overbanking On 10% Chance Flood

[3] Annual Benefits Minus Annualized Costs.

[4] Percentage Figures In Parentheses Indicate The Percent Of Habitat Type Affected In The Lower Sheyenne Basin (Cass County Tributary Cass County)

[5] No Estimated Consequence Available

[6] Percent Of Total Sheyenne River Flood Damages Reduced.

Source: US Army Corps of Engineers, Technical Apendixes Volume 3 of the General Design Memorandum Phase I and Environmental Impact Statement for Flood Control and Related Purposes, Sheyenne River, January 1982

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NORTH DAKOTA Water Users Association

North Dakota
Water Report

MONTHLY NEWSLETTER — MAY, 1985

P.O. Box 2254 • Bismarck, North Dakota 58502 • (701) 223-4615 — MICHAEL DWYER, Executive Vice-President

Long-term Objectives and 1985 Resolutions

of the North Dakota Water Users Association and the North Dakota Water Resource Districts Association

(Adopted December 4, 1984, Bismarck, North Dakota)

OBJECTIVES

1. **PROTECTION OF WATER RESOURCES.** To preserve and protect our water resources for all beneficial uses. North Dakota's water resources may be endangered by downstream interests if development of our water resources is not expedited.
2. **GARRISON DIVERSION UNIT.** To urgently develop and complete the entire initial stage of the Garrison Diversion Unit, in a manner consistent with the National Environmental Policy Act and the Boundary Waters Treaty of 1909. The Garrison Diversion Unit will deliver Missouri River water to water short areas for municipal, industrial, irrigation, fish and wildlife and recreational purposes. The Garrison Diversion Unit will therefore benefit the entire state of North Dakota, the surrounding region, and the nation.
3. **RIVER BANK PROTECTION.** To protect and stabilize the banks of the Missouri River between the Oahe Reservoir and Garrison Dam and the Yellowstone River in North Dakota in accordance with the recommendations of the North Dakota State Engineer and affected water resource districts. Protection of the banks of the Missouri and Yellowstone Rivers, including construction, operation and maintenance of works, is a federal obligation under the Pick-Sloan plan and should be a federal responsibility. To protect and stabilize the banks of the other rivers in the state, including, but not limited to, the Heart River, Souris River, Little Missouri River, Forest River, and Tongue River.
4. **RURAL WATER.** To provide for a dependable, stable, and good quality water supply for municipal, domestic, and rural uses through rural water delivery systems in the more sparsely populated areas of central and western North Dakota, and thereby enhance the quality of life in rural North Dakota.
5. **FLOOD CONTROL.** To effectively control flooding in the Souris River basin, the Devils Lake basin, along the James River, along the Red River and its tributaries, including the Sheyenne River, the Pembina River, the Park River, and other rivers and streams in North Dakota which experience recurrent flooding, so that the destruction and loss of property caused by flooding can be eliminated.
6. **WATER FOR INDUSTRY.** To continue North Dakota's position as an attractive location for energy and industrial development, through the availability of an adequate supply of water for such purposes, to maintain and increase employment and economic opportunities for our state and local communities.
7. **GOVERNMENT REGULATION.** To eliminate or defeat governmental regulations which adversely affect our water development and water management opportunities.
8. **NATIONAL WATER POLICY.** To support the adoption of a national water policy based upon (1) full recognition of the rights of the states to manage their water resources, (2) the inherent right and obligation of state, regional and local entities, with or without the federal government, to provide for the timely development of their water resources, (3) the proper role of the federal government being to assist and cooperate with the state and their subdivisions in meeting water resource needs and to provide financing for state and local projects as these are beneficial to the nation as well as the state.
9. **IRRIGATION.** To develop North Dakota's water resources for irrigation, consistent with best management policies, and for livestock and other agricultural uses, to improve and stabilize North Dakota's farm economy.
10. **WATER PERMITS FOR IRRIGATION.** To ensure the continued policy of the North Dakota State Engineer to issue water appropriation permits for irrigation based on an evaluation of soil and water compatibility standards developed upon modern irrigation and best management practices and to continue to urge the North Dakota State Legislature to provide the necessary funding for personnel to establish and put these standards into effect.
11. **ALLOCATION OF WATER.** To support the efforts of the State Water Commission and other concerned agencies and individuals to develop groundwater and surface water modeling techniques which will provide a solid basis for future water allocation and conservation decisions, and to support the North Dakota State Engineer's continued policy to allocate water from aquifers in accordance with sustained yield to prevent the mining of North Dakota's aquifers.
12. **SOUTHWEST NORTH DAKOTA WATER SUPPLY.** To provide for total water development in Southwestern North Dakota to improve the natural environment and quality of life in the Southwest areas as well as the entire State of North Dakota. To bring much needed domestic, rural and municipal water to the people of Southwestern North Dakota and to develop water resources in Southwestern North Dakota for irrigation, recreation, industrial and other beneficial uses.
13. **SOUTHWEST PIPELINE PROJECT.** To support the efforts and programs of the West River Joint Board, the West River Water Supply District, the rural water cooperatives in Southwest North Dakota, to bring much-needed domestic, rural, and municipal water to the people of Southwest North

Dakota through the implementation of the Southwest Pipeline Project.

14. **DEVILS LAKE RECREATION.** To support the efforts of the Devils Lake area County Commissions and Water Resource Districts to establish, develop, and upgrade outdoor recreation areas, access roads and scenic routes adjacent to Devils Lake.
15. **WEATHER MODIFICATION.** To support continued funding by Congress and the North Dakota Legislature for research and development for weather modification activities and programs for the management of our atmospheric resources, through joint state-federal programs.
16. **FLOOD PLAIN MANAGEMENT.** To urge flood-prone communities in North Dakota to adopt and enforce flood plain management ordinances to reduce future flood damage, and to encourage the North Dakota State Engineer to continue to develop and provide the best available flood plain data to communities for their use.
17. **COST SHARING.** To work towards the adoption of sound federal cost-sharing policies for only the reimbursable portion of water resource projects, which recognizes the already-substantial historical participation by the states and local entities in the cost of water projects, which recognizes the unique circumstances relative to each water project, which recognizes in-kind cost-sharing by state and local entities, and which does not apply any new or revised cost-sharing requirements to projects which are authorized or under construction.
18. **MISSOURI RIVER.** To resist the formation of an inflexible Congressionally sanctioned compact for allocation of Missouri River waters, since prior allocation of the Missouri was dictated and agreed to in the 1944 Flood Control Act, and any further steps to re-allocate Missouri waters are unnecessary and damaging to North Dakota.
19. **SOIL AND WATER CONSERVATION.** To pursue (a) an aggressive and sound program for conservation of soil, water, and related natural resources, and to cooperate with the North Dakota Association of Soil Conservation Districts in this effort; (b) to work towards continued funding of the Great Plains Conservation Program; (c) to support increased local, state and federal efforts and programs that encourage farmers to carry out less tillage and leave increased amounts of residue on the soil surface for erosion protection; (d) to encourage voluntary conservation programs; (e) resource conservation and development programs; (f) ACP cost-sharing; (g) shelterbelt plantings for erosion and flood control; (h) continued accelerated work on completion of the soil survey work in North Dakota so as to stay on target for completion of North Dakota's soil survey by 1992; (i) the strengthening and program enhancement of our research and education efforts to control Leafy Spurge.
20. **WATER BANK PROGRAMS.** To support the continuation of the Federal and State Water Bank Programs with priority for using Federal funds for renewal of existing Federal Water Bank Contracts and to amend the programs, as may be necessary, for the control of weeds or unwanted plants in these contract areas.
21. **WATER-BASED RECREATION.** To work towards the development of park and recreation areas to meet the day, weekend and vacation needs of the people of North Dakota, and thereby broaden the economic base of North Dakota.
22. **GROUNDWATER QUALITY PROTECTION.** To protect the quality of North Dakota's groundwater resources from unnatural contamination.

RESOLUTIONS

ENDORSE AND SUPPORT THESE WATER PROJECTS:

GARRISON DIVERSION UNIT. We urge the continued construction of the Garrison Diversion Unit of the Pick Sloan Plan as proposed in the 1984 North Dakota Plan for Development of the Garrison Diversion Unit. Specifically, we embrace the concepts forwarded by this plan as follows:

1. Early completion of the Missouri-James River Basin portion of the Garrison Diversion Unit, including completion of Lonetree. The Missouri-James River Basin portion includes 113,000 acres of irrigation.
2. Additional emphasis of early delivery of municipal, rural and domestic water into the Sheyenne River through adequate treatment works (i.e., fish screen or sand filter).
3. Additional emphasis of the early development of identified recreation areas.
4. Mitigation of wildlife impacts concurrently with the development of project features in accordance with the wildlife mitigation and enhancement plan developed for Phase I of the authorized project.
5. Development of the remainder of the project on a basin by basin approach, addressing the Sheyenne/Red Basin, the Devils Lake Basin, and the Souris Basin separately. Consultations with Canada will determine which features in those basins can be developed.

We feel it premature to consider discontinuance of future development in the Hudson Bay watershed. We strongly support continued research and discussions with Canadian scientists and responsible officials in order to address concerns of Canadian citizens.

In addition, we support the 5,000-acre research area located in the West Oakes Unit which addresses the recommendations of the International Joint Commission.

SOURIS RIVER FLOOD CONTROL. We support the concept of providing immediate interim flood-control protection in the Souris River Basin while alternatives to providing permanent protection are investigated. We also urge investigation to continue on the Des Lacs River to alleviate flooding along that river and thus curb its downstream impact on the Souris River.

SHEYENNE RIVER. Congress is urged to authorize and fund the essential components of the Corps of Engineer's recommended plan of flood control on the Sheyenne River, subject to the provision, however, that the 5 foot raise of the Lake Ashtabula flood pool level shall be reconsidered for elimination from the plan at such time as the Upper Sheyenne Joint Water Board has implemented an acceptable alternative. The construction of the Dead Colt Creek Dam should be considered a credit toward the non-federal share when cost sharing on the Sheyenne River project is considered.

Further, the U.S. Army Corps of Engineers is urged to implement as expeditiously as possible revised management of the Baldhill Dam to achieve the equivalent 10,000-15,000 acre-feet of additional storage it has identified as an alternative in its general design memorandum and environmental impact statement for the Sheyenne River, provided that the allocation of water supply for municipal and industrial use in the Fargo-West Fargo area is not adversely affected. At such time as it becomes a reality, diversion of the Missouri River waters through Garrison Diversion facilities into and through the Sheyenne River, should be considered as an additional factor to enhance the concept of revised management of the Baldhill Dam.

PEMBINA RIVER BASIN. In view of the fact that the Pembina River multi-purpose project, the Pembilier Flood Control Project, has been determined economically unfeasible by the Corps of Engineers, the State Water Commission and the local Water Resource Districts are encouraged to seek alternative solutions to flood problems in the Pembina River Valley, including cooperation with Canada in raising water levels of Pelican, Rock and Swan Lakes in Canada. We request that a cooperative study be conducted on the damages caused by Pembina River flooding.

PARK RIVER BASIN. We encourage the U.S. Army Corps of Engineers to conclude their examination of the alternatives to the ring levee of Grafton with the idea of building a multi-purpose dam east of Adams to contain the flood water of the Park River, plus channel improvements on the river area below the dam. Congress is urged to authorize funds for this project.

APPLE CREEK FEASIBILITY STUDY. We support continued state and federal funding to complete the comprehensive water resource feasibility study of the 3-county, 3 million-acre Apple Creek Unit of the Pick-Sloan Missouri River Plan. Adequate attention to all beneficial uses of water has not been given consideration. Recommendations of local people and organizations should also be considered.

FLOOD CONTROL PROJECTS. We recommend all interested organizations and governmental agencies to seek necessary changes in the principles and guidelines that are used by all federal agencies conducting feasibility studies for flood control projects in agricultural areas and their rural communities. It is our belief that the Soil Conservation Service has the familiarity and expertise for improving these rural area project studies.

Further, Congress is urged to assign the Soil Conservation Service the responsibility for conducting feasibility studies on reservoir projects costing less than $50 million where most of the damages and benefits involve rural communities and agricultural land.

We urge the St. Paul District of the U.S. Army Corps of Engineers to establish as expeditiously as possible a Technical Resource Service to provide assistance to North Dakota and local water management entities for purposes of local water resource management.

WATER RETENTION DAMS. We support the construction of water retention structures on the tributaries of the Red River in North Dakota because we believe that water retention dams are the most efficient and effective method of reducing flood damages.

CANALSIDE IRRIGATION. We strongly urge that the Garrison Diversion Conservancy District, the Bureau of Reclamation, the State Water Commission, and any other agency involved continue to aggressively pursue the development of a pilot irrigation project alongside the canals of the project if the soils are classified as irrigable.

ENDORSE AND SUPPORT THESE WATER PROGRAMS:

We urge the Corps of Engineers to develop revised criteria which will make it possible for the Corps to participate in the cost of snagging and clearing projects, participation which is now precluded by unrealistic cost benefit requirements.

We urge Congress to increase funding and the USDA, SCS to accelerate assistance through the Resource Conservation Development Program (RC&D), and the Watershed Protection and Flood Prevention Program (PL-566) to reduce soil erosion and flood damages. We urge the acceleration of flood plain management studies and their implementation through a structural and nonstructural approach.

We support the development of a program by the North Dakota State University to study irrigation using sewage effluents.

We urge the State of North Dakota and the State Water Commission to explore methods of assuming the functions formerly performed by the North Dakota Water Resources Research Institute with a greater emphasis on practical research affecting agricultural water uses and management.

FEDERAL LEGISLATION:

SECTION 404. We support amendments to Section 404 of the Clean Water Act which would limit application of the Federal permit program directed by the Army Corps of Engineers to waters which are not in fact commercially navigable and adjacent wetlands, and we adamantly oppose the position taken by the Department of the Army that it has authority to deny Section 404 permits for reasons which are contrary to long-standing Congressional policy to recognize states' water rights authority.

POWER REVENUES. We oppose any attempts by legislation or federal agency regulation or any other means to remove power revenues from existing and future multi-purpose water development projects. We also urge the continuation of the Congressional prohibition of expenditures of Federal funds on the Niskanan Study of federal power rates in reclamation projects. The ultimate development concept of hydro-power rates is crucial to reclamation in the West and we strongly oppose any moves to change this concept.

MIGRATORY BIRD CONSERVATION FUND. We oppose any extension of the interest free loan to the Migratory Bird Conservation Fund unless the extension contains provisions which would require:

1. All payments in lieu of taxes (pursuant to 16 U.S.C. Section 715s) must have been made for the five consecutive previous years before the Secretary of the Interior may acquire waterfowl production areas or refuges in North Dakota.
2. Payments in lieu of taxes may be made from the Migratory Bird Conservation Fund if adequate "in lieu" payments are not appropriated.
3. The 764,522 acres of wetlands on all pre-1976 waterfowl production area easements must be delineated.
4. That no transfer of funds from the Land and Water Conservation Fund be made to the Migratory Bird Conservation Fund.
5. Require immediate and adequate management and development of lands already acquired.

We are also opposed to the forgiveness of the $200 million interest free loan against the duck stamp.

ENDANGERED SPECIES. We urge Congress to take immediate steps to either amend the Endangered Species Act to provide in the application of the Act for a balance between human requirements and the species of wildlife allegedly endangered, or repeal the law.

WILD AND SCENIC RIVERS. We urge Congress to amend the "Wild and Scenic Rivers Act" (16 U.S.C. Section 1271) to require the concurrence of the State Legislature after adequate consideration and public input before a river or segment of a river can be included in the federal wild and scenic rivers system and to allow removal of a river from the federal system by State Legislative action.

ACID RAIN. We believe that although acid rain is a problem of growing public and international concern, any legislative solution should proceed cautiously and only after comprehensive scientific studies are completed and evaluated, and then in a staged manner so that the methods employed can be modified as more is learned about the problem. To achieve the most cost-effective and equitable methods of realizing man-made fossil fuel combustion emission reduction, the legislation should not restrict the options available, including the use of low sulfur coal, and should require control of all man-made sources.

FISH AND WILDLIFE SERVICE:

We recommend all requests to the various boards of county wildlife commissioners for land acquisition by the Federal Fish and Wildlife Service and the State Game and Fish Department be referred to the water resource boards for recommendation.

We strongly support the policy of the State that it is not in the best interests of North Dakota for the Department of the Interior to maintain two separate wetlands acquisition programs concurrently in the state.

We further request the early completion of a State Wildlife Management Plan which will delineate the goals of wildlife development for the state, the needs of the wildlife resource and methods of satisfying those goals and needs, giving first priority to needs of the people.

We urge county and township zoning and planning boards to protect existing agricultural lands by zoning against utilization for the production and protection of wildlife under the Federal Small Wetlands Acquisition Program except and unless such land is credited toward the mitigation acreage required for water resource development projects.

ADDITIONAL HYDROPOWER:

We support detailed study of alternatives leading to development of additional hydropower peaking capacity of Garrison Dam.

We encourage and support state investigation of potential

pumped-back storage alternatives in North Dakota.

We urge that any study of water project alternatives include the investigation of the potential for energy generation utilizing project facilities.

LITIGATION:

We urge that litigation involving water resources projects and issues be considered by courts within the jurisdiction in which the principal projects are located, saving unnecessary expense for those involved, and that the plaintiffs in lawsuits seeking to enjoin the development of our water resources be required to post bond to cover damages in the event that the lawsuit is determined not be meritorious.

We deplore lawsuits to stall or block progress of legal and necessary water programs.

MISSOURI RIVER:

We ask the Governors of the Upper Missouri states for a coordinating council for resolving common Upper Basin concerns and to provide a united front for combined development of the Missouri River through the completion of the Pick-Sloan Plan.

FEDERAL-NON-RESERVED WATER RIGHTS:

We believe that the so-called doctrine of federal non-reserved water rights is repugnant to the proper relationship between the states and the federal government in water supply and management, and we reject it in favor of United States' appropriation or purchase in the same way that any water user in the state jurisdiction must proceed.

STATE LEGISLATION:

North Dakota should undertake water development as a state program in North Dakota in an aggressive manner.

The Resources Trust Fund should be amended so that funding from the Resources Trust Fund can be provided for all water related projects, instead of being limited to water supply facilities.

The entire amount of funds in the Resources Trust Fund carried over from the 83-85 biennium and the entire amount of funds in the RTF project for the 85-87 biennium should be appropriated for initial construction of the Southwest Pipeline Project and the State Water Commission Contract Fund.

We support legislation to strengthen or improve joint board powers statutes. We believe this to be the most efficient and flexible means of addressing common water management and development problems of a region or watershed area.

We support the orderly implementation of the Comprehensive State Water Plan.

We strongly support the aggressive and vigorous development of water resources for all beneficial uses, including irrigation, industrial, municipal, rural and other uses, for the benefit of all the citizens of North Dakota, and we support the commitment of the required funds, including an increase in taxes, if necessary, to accomplish the development of our water resources in an aggressive and vigorous manner. Therefore, we strongly support an increase in the allocation of the oil extraction tax to the Resources Trust Fund from 10 percent to 15 percent.

We oppose any legislation which would impose water marketing charges or taxes against energy and industrial users of water which would exceed the actual administrative, regulatory, research and planning costs incurred as a result of such uses of water.

We oppose the levy of any water user fees against agricultural, municipal, or domestic uses of water other than water permit application fees currently imposed by statute.

We support amendments which would place requirements for the preparation of master plans of the joint board level on a discretionary rather than mandatory basis.

We urge the 1985 Legislature to return the money appropriated from the RTF by the 1983 Legislature for purposes not related to water.

It is our position that the Community Water Facility Loan Fund of the Bank of North Dakota is an important and viable source of financing for rural and small municipality water systems. Therefore, while we do not support the appropriation of any additional money for this fund by the 1985 Legislature, we support future transfers of funds from the Resources Trust Fund or other sources to the Community Water Facility Loan Fund as a viable source of funding.

We oppose proposed amendments that would allow farmland to be purchased by non-profit organizations for the purpose of conserving natural areas or habitats for biota, unless sufficient safeguards requiring local and state approval of such purposes are included as part of such amendments.